VOLUME II

of

THE CORNBELT'S LAST OPEN POLLINATED CORN

This two-volume book is an historic study of open pollinated corn suxh as was grown by cornbelt farmers during the years immediately preceeding the general introduction of hybrid seed corn. All data used in the study were taken from the records of the Woodford County Corn Yield Test that was conducted by the Woodford County, Illinois, Farm Bureau cooperating with the Agricultural Extension Service of the University of Illinois and the United STates Department of Agriculture. /1. The test was conducted during the three years of 1919, 1920 and 1921.

The Krug corn entered in the test by George Krug was the highest yielding of the 120 samples entered in the test. It had wide distribution and soon came to be used by more farmers in the heart of the cornbelt from Columbus, Ohio, to Lincoln, Nebraska, than any other pf several well known strains. It was also the sourse of inbreds used in some of the early commercial hybrids. Henry A. Wallace and William L. Brown named Krug corn as one of three major sources of inbreds with which the early hybride were produced in their book, "Corn and Its Early Farthers", published by the Michigan State University Press in 1950. A brief review of the contents of the two volumes follows.

VOLUME I

Volume I is a supplement to Chapter 8 of the book, "Early Iowa Corn Yield Tests and Related Later Programs", by M.L. Mosher, published in 1962 by the Iowa State University Press. The volume includes natural size photographs of typical ears of each of the 120 samples entered in the test and numerical values of twenty descriptive items for each sample. The reader is urged to read Chapter 8 of the book referred to above before reading further in this book.

VOLUME II

Volume II is a revision of the "Report of a Study of the Relation of Certain Physical Qualities of Seed Corn to Yield, Quality and Maturity." Copies of the report were filed in the Agricultural Library of the University of Illinois, the Library of the Iowa State University and the Holden Library of the Michigan State University.

/1 The County Farm Bureau was then the name of the County Extension Organization.

by
M.L.Mosher
Mayflower Home
Grinnell, Iowa
1974

THE CORNBELT'S LAST OPEN POLLINATED CORN

VOLUME II

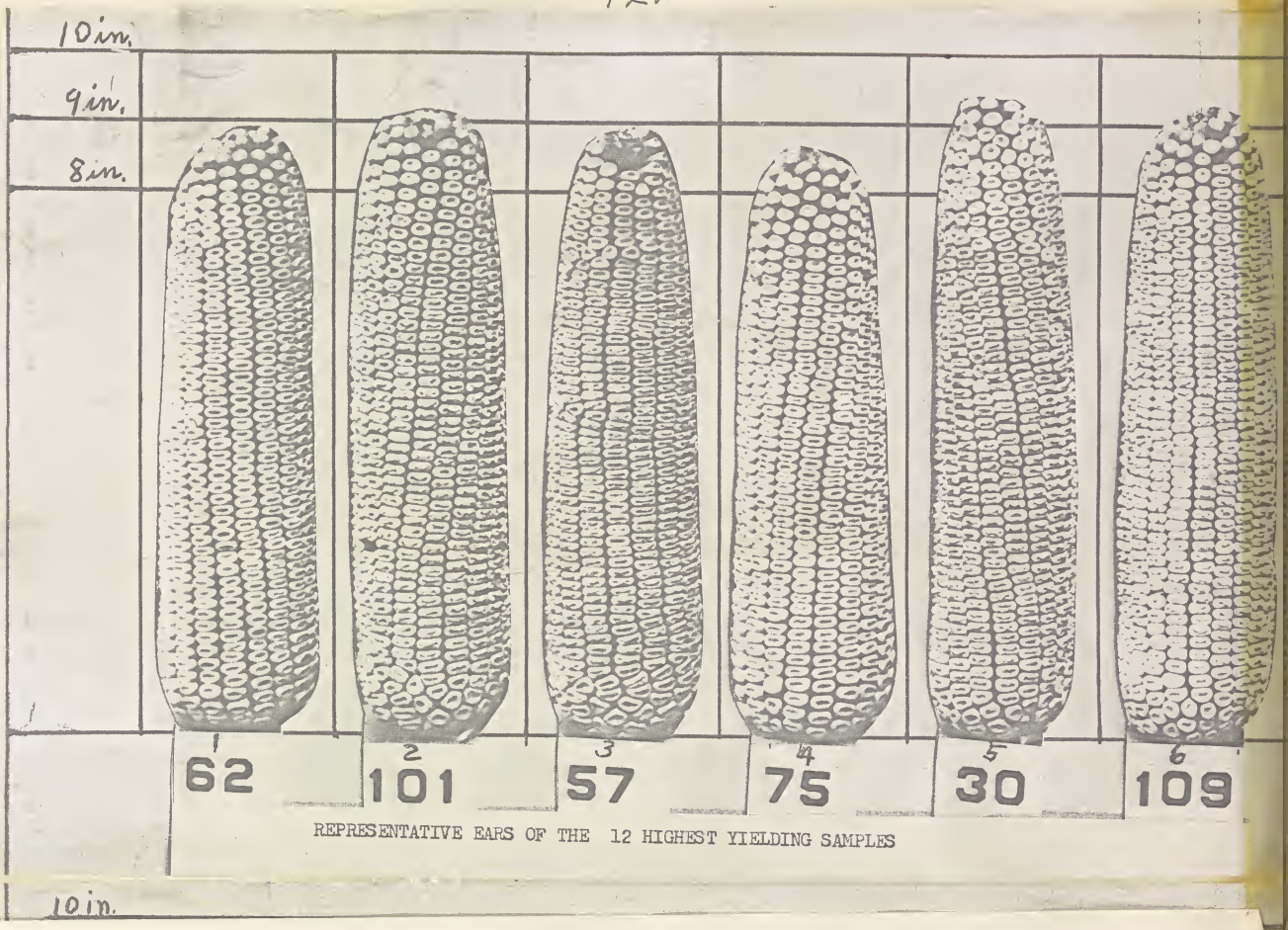
DEDICATION

This Volume II is dedicated to my oldtime corn-judge friends, very few of whom are still living. We of my generation, especially those in Illinois and Iowa, were desciples of Professor P.G.Holden who studied under Dr.W,J,Beal, Professor of Botany and Horticulture, at what is now the Michigan State University. Henry A. Wallace and William L. Brown in "Corn and Its Early Fathers" report that Dr. Beal was the first to cross different varieties of corn for the purpose of increasing yield. Professor Holden came to the University of Illinois in the late 1890's where he was the first person, anywhere, to be named Professor of Agronomy. After a few years at the University of Illinois and one year in commercial corn work with the Funk Brothers Seed Company at Bloomington he was employed by the Iowa State University as Head of Agronomy.

Professor Holden soon popularized the holding of corn shows; national, state, county and local. The Iowa Corn Growers Association was organized and held annual state corn shows. The State Asspciation also held corn judges schools and issued corn judges certificates to those who passed the final examinations. Holden also developed the County Farm Demonstrations with corn in which it was learned that, invariably, some unknown farmers were using seed of their own selection which produced higher yields of better quality corn than seed from winners at state and national corn shows and from seed companies. See "Early Iowa Corn Yield Tests and Related Later Programs".

This was a hard blow to us oldtime corn judges. Some never believed that large ears with long, rough kernels were not the best for farmers to grow in the heart of the Cornbelt; and they were perfectly sincere in their belief. However, there were a few, especially those of us who conducted corn yield tests, came to realize that size of ear, depth of kernel indentation, and uniformity were not the most important qualities and the utility types began to emerge. Such utility types were well on their way to take over when hybrids came into general use. It is to those sincere oldtime corn judges that this Volume II is dedicated and is being written as a matter of historic interest.

CONTENTS OF VOLUME II



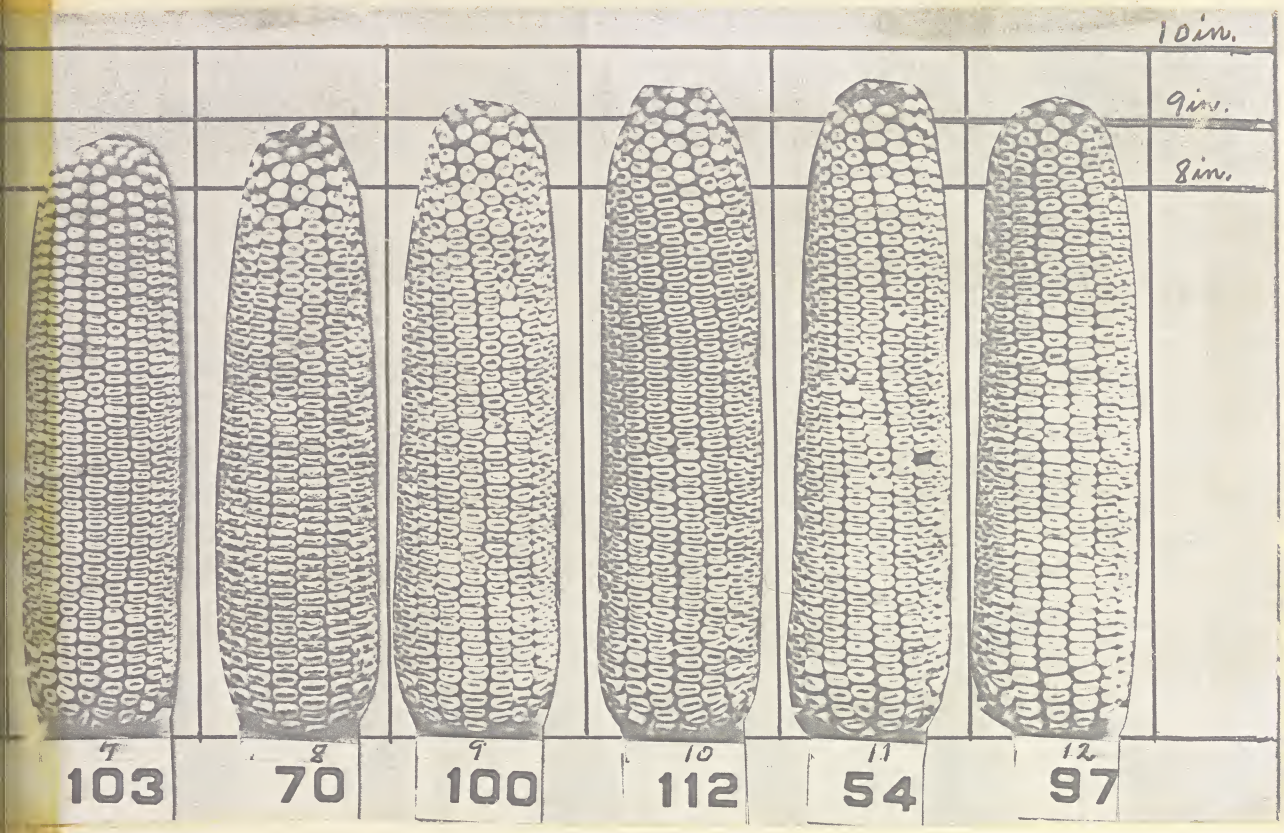
REPRESENTATIVE EARS OF THE 12 HIGHEST YIELDING SAMPLES

YIELD(BUSHELS PER ACRE)

as related to

EACH OF 19 DESCRIPTIVE ITEMS

(See pages 124-125)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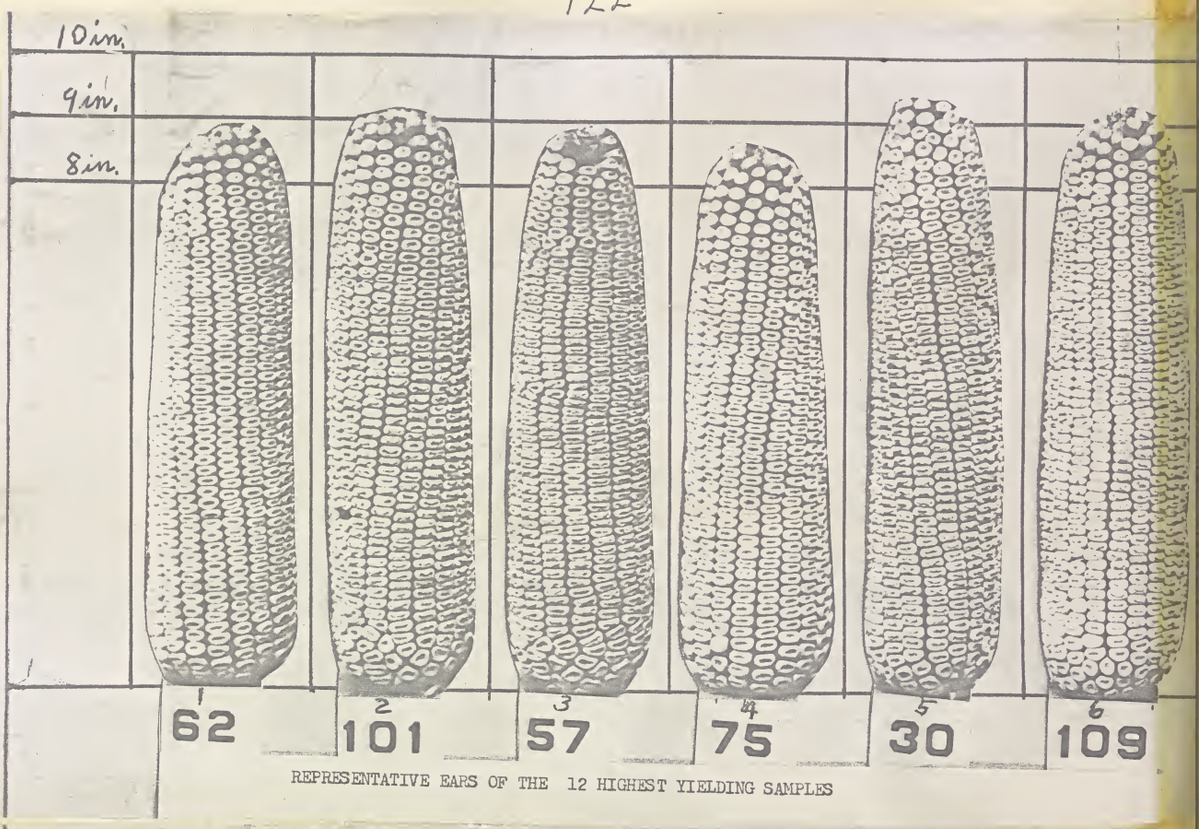
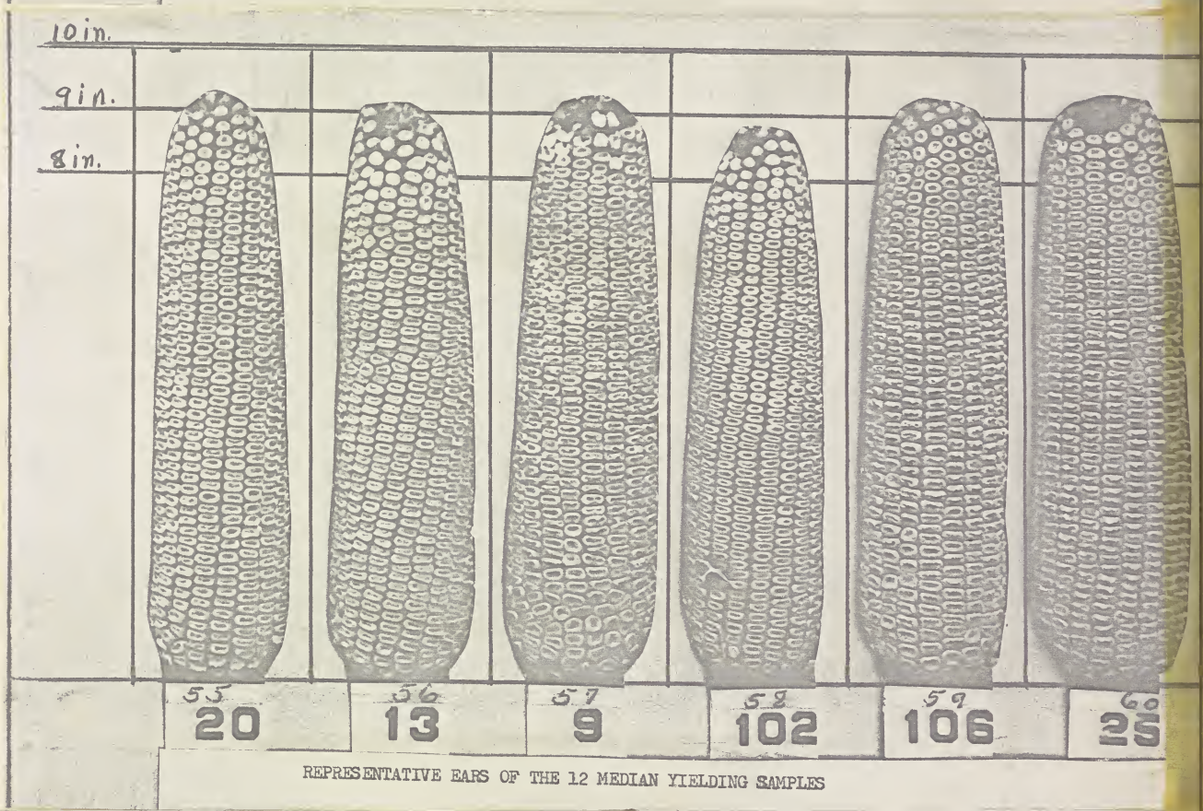
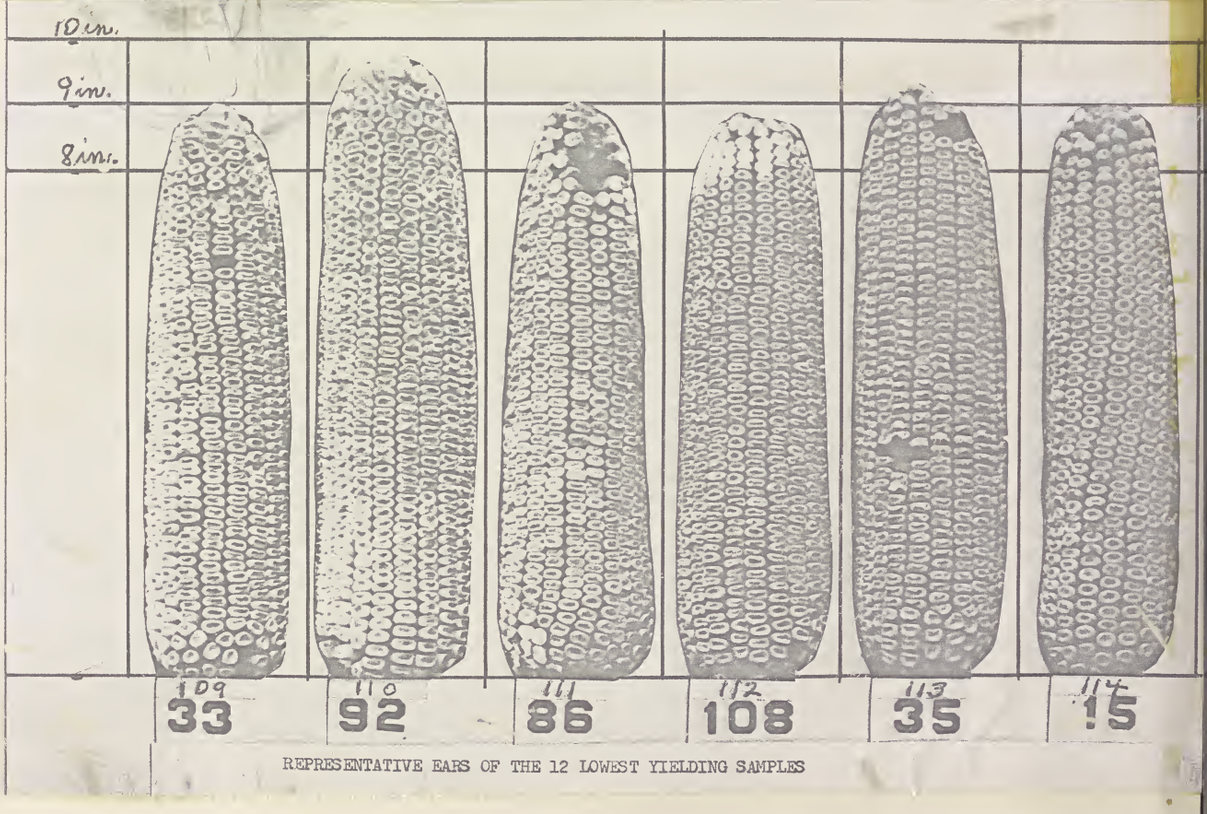


REPRESENTATIVE EARS OF THE 12 HIGHEST YIELDING SAMPLES



REPRESENTATIVE EARS OF THE 12 MEDIAN YIELDING SAMPLES



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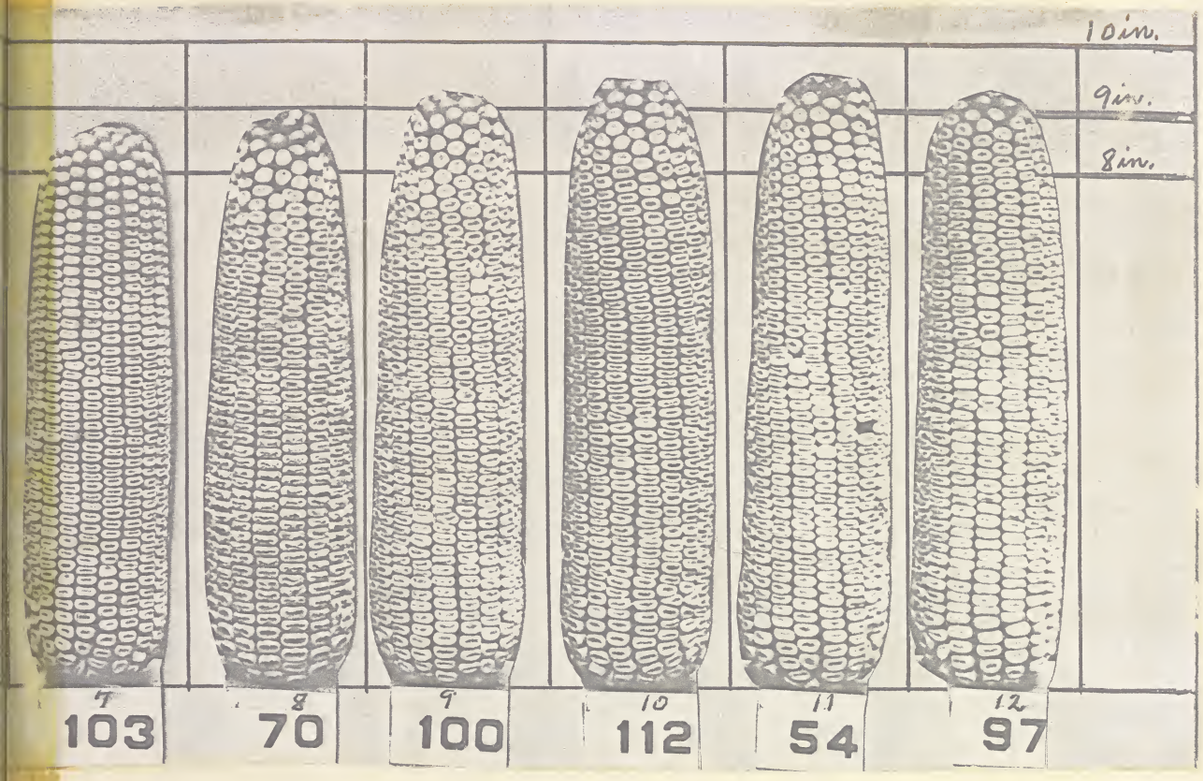
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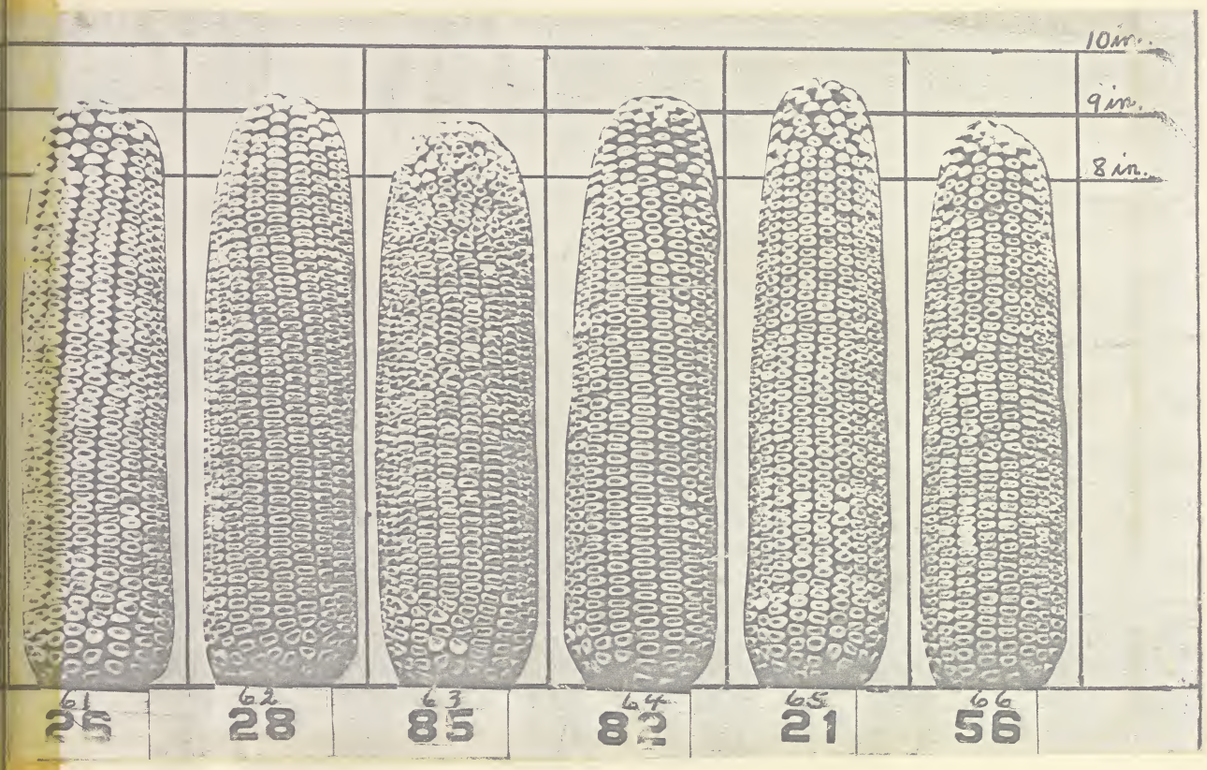
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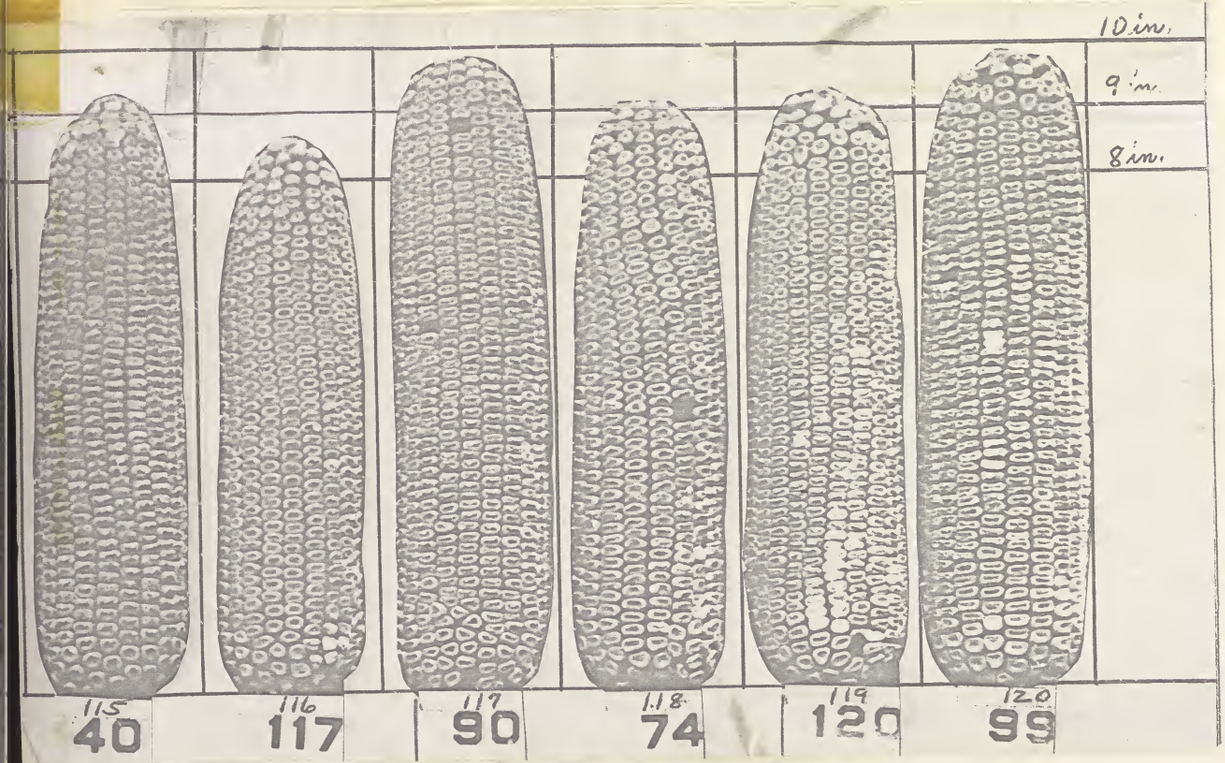
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HOW YIELDS, BUSHELS PER ACRE, WERE OBTAINED

The reader is urged to read again the first half of Chapter 8 of "Early Iowa Corn Yield Tests and Related Later Programs" in order to get a clear idea of the plan, description and results of the Woodford County Corn Yield Test, before proceeding to study Volume II.

The yields as published were adjusted to the three-year average yields of dry shelled corn containing 15 percent moisture as follows:

1.-Two fields about 20 miles apart were used each year to avoid hail or other storm damage. No one of about 1,200 plots planted each year was lost.

2.-All samples were planted twice on each farm each year. This helped adjust to differences in soil, drainage, previous crop programs, etc, in different parts of the fields.

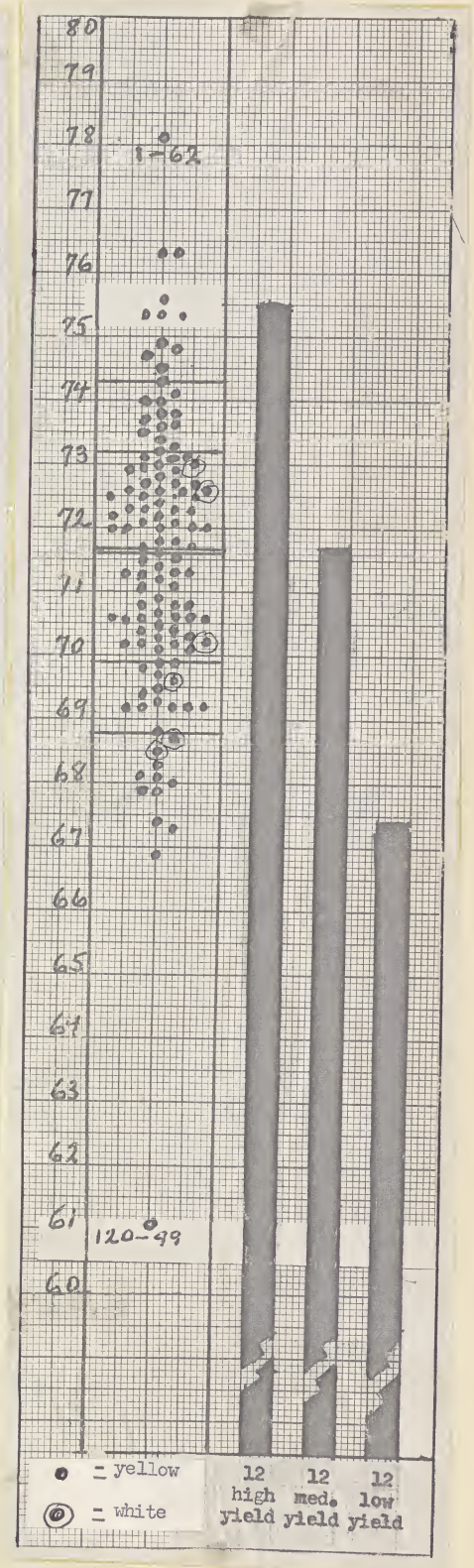
3.-Each sample was planted between two check plots which were planted the same day as the test plots. All check plots were planted with one strain of yellow dent seed that was carefully prepared for planting. Yields of all test plots were adjusted to the yields of the two adjacent check plots, as they had been adjusted to the average yields of all check plots in the field.

4.-As each plot was harvested a typical 20-ear sample was selected, weighed, stored in the Farm Bureau office until dry, when it was again weighed, shelled and the shelled corn weighed and tested for moisture and shelling percentage.

5.-The number of missing hills in each plot was recorded and the final yield adjusted to a full stand of at least one stalk per hill.

6.-During 1922, the fourth year of the test, seed from 11 copperators whose corn had yielded best during the first three years was planted on 20 farms on different grades of soil and in all parts of Woodford County. Chinch bugs were very bad in 1922 and only 10 fields were harvested and the results used. The chinh bugs affected all samples about alike; the Krug corn was no better than the others in this regard. The Krug corn was consistantly high in yield on all types of soil.

The chart on the opposite page shows that the 12 high yielding samples were, as a group, in the median or most favored decil groups for all descriptive items except for indications of disease in the germinating seedlings of all 70 ears entered for the test. Likewise, the 12 low yielding samples were in the median or least favored groups except weight of ear and length of kernel.



114 YELLOW AND 6 WHITE SAMPLES
were entered in the
WOODFORD COUNTY CORN YIELD TEST

Most of the 114 yellow samples entered in the Woodford County Corn Yield Test were strains of Reid's Yellow Dent. The Reid's Yellow Dent corn was developed by Robert Reid and his son James Reid on a farm near Delavan in Tazewell County which joins Woodford County on its southwest corner.

The six white samples shown on the chart by circled dots ◎ were of the Silvermine or Boone County White types. Their records appesr on pages 31, 39, 93, 100, 109 and 110 of Volume I. Note by their numbers and their position on the chart that no white sample was in a high yielding group and that four were in low yielding groups.

Except for a little grown for special uses white corn is no longer grown in the Cornbelt.

Bushels per acre or yield

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	75.5	71.7	67.4	● High 78.1					▲ Median 71.7						Low ○ 61.0	122–125
Percent of good corn	89.7	89.3	88.7	High 92.7					● 89.8		▲		○		Low 85.8	126–129
Percent of moisture	20.7	22.1	21.9	Low 17.9			●				▲ ○				High 24.9	130–133
Percent of shelled corn	86.2	85.9	85.5	High 87.3		●					▲ ○				Low 84.5	134–137
Density of shelled corn	34.5	33.8	33.9	Heavy 35.6			●					▲ ○			Light 32.4	138–141
Germination index	89.5	85.3	79.8	High 93.8				●			▲				Low ○ 64.5	142–145
Disease index	72.3	72.5	67.6	Little 90.2							▲	●			Much 58.3	146–149
Weight of ears	12.85	13.20	13.33	Heavy 15.07			▲ ○		● 12.75						Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	40.16	38.67	39.47	Heavy 42.03			●		Median 39.54 ○				▲		Light 37.58	154–157
Kernel development	59.1	56.6	54.3	Good 78.6				●	▲ 56.4		○				Poor 38.3	158–161
Indentation index	46.8	53.6	58.7	Smooth 16.5					● 44.7			▲	○		Rough 87.3	162–165
Length of kernels	13.54	13.75	13.86	Long 15.72	○			● ▲	13.41						Short 12.47	166–169
Width of kernels	7.94	7.92	7.73	Wide 9.01					● ▲ 7.92			○			Narrow 7.12	170–173
Thickness of kernels	4.19	4.17	4.11	Thick 4.42					● 4.21		▲		○		Thin 3.89	174–177
Length of ears	8.88	8.93	8.88	Long 9.67					● ▲ 8.96 ○						Short 8.25	178–181
Diameter of ears	2.141	2.182	2.199	Small 2.012					● 2.137			▲	○		Large 2.304	182–185
No. of rows of kernels	18.0	18.8	19.4	Small 14.9				●			▲		○		Large 2.09	186–189
Color of shank index	63.9	70.3	59.4	White 86.7				▲	● 67.7				○		Dark 36.7	190–193
Condition of shank index	45.4	41.6	37.9	Smooth 58.3			●		▲ 38.4 ○						Rough 18.3	194–197
Variation index	7.2	7.1	7.1	Uniform 3.0					● ▲ 7.0 ○						Uneven 11.0	198–201

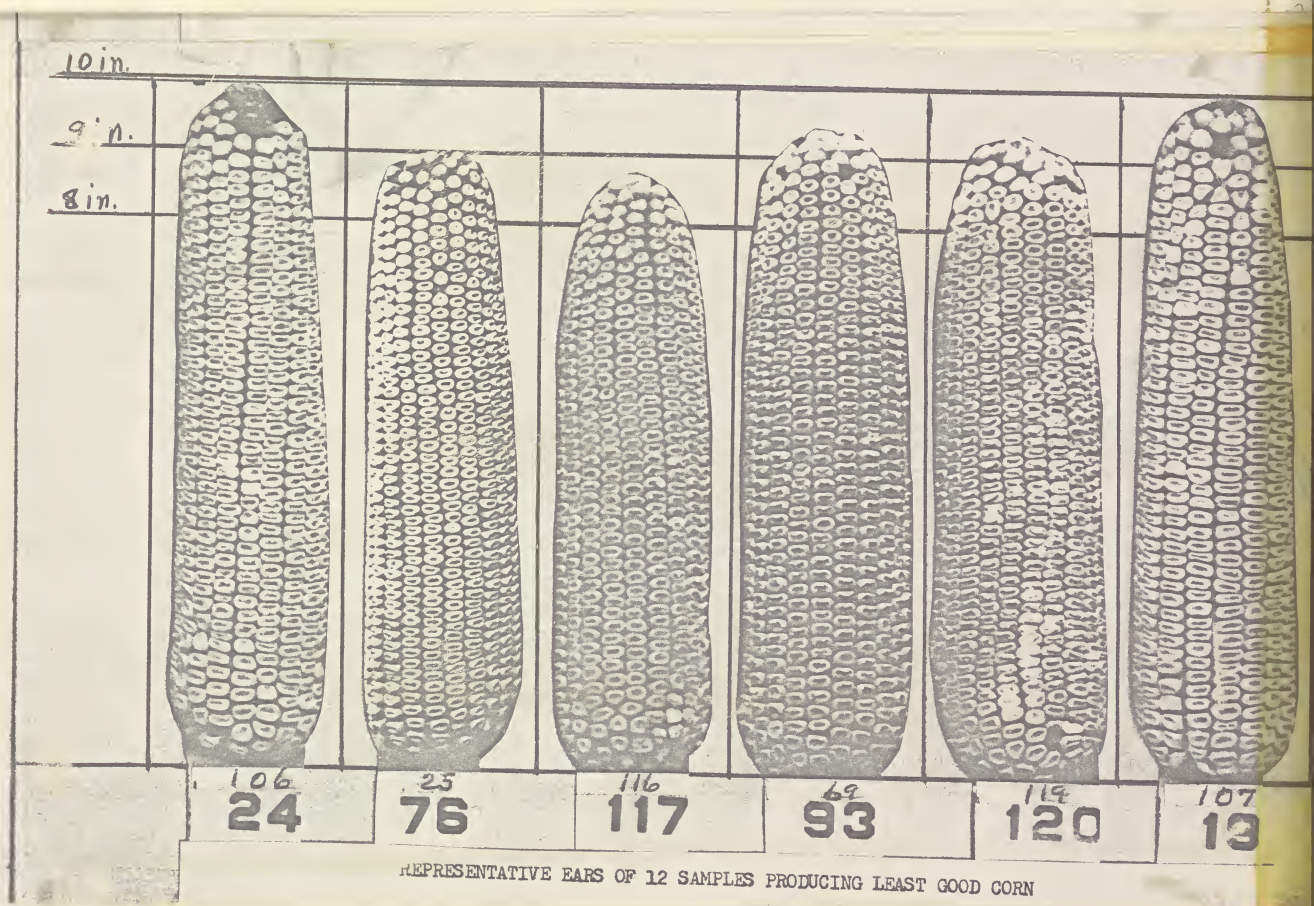
★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

PERCENT OF GOOD CORN

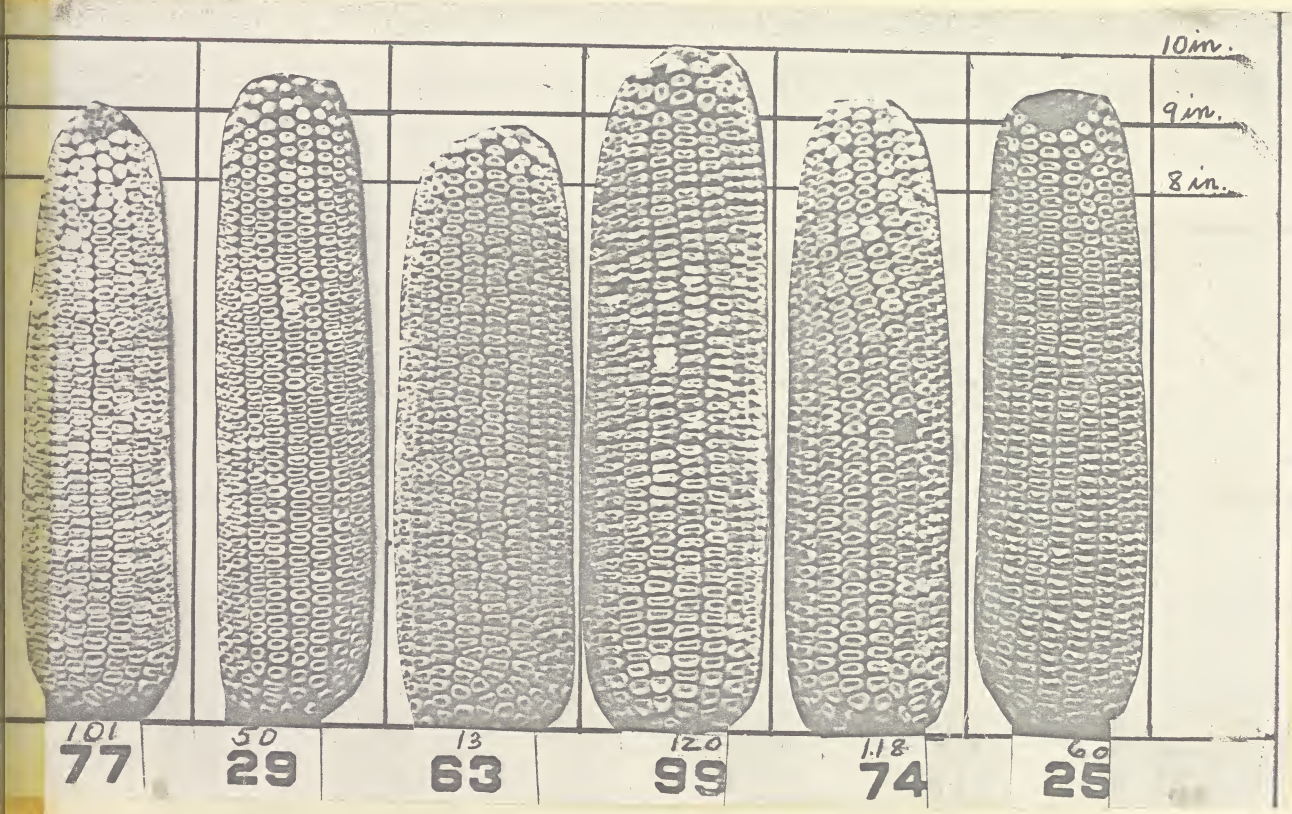
as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 128-129)



REPRESENTATIVE EARS OF 12 SAMPLES PRODUCING LEAST GOOD CORN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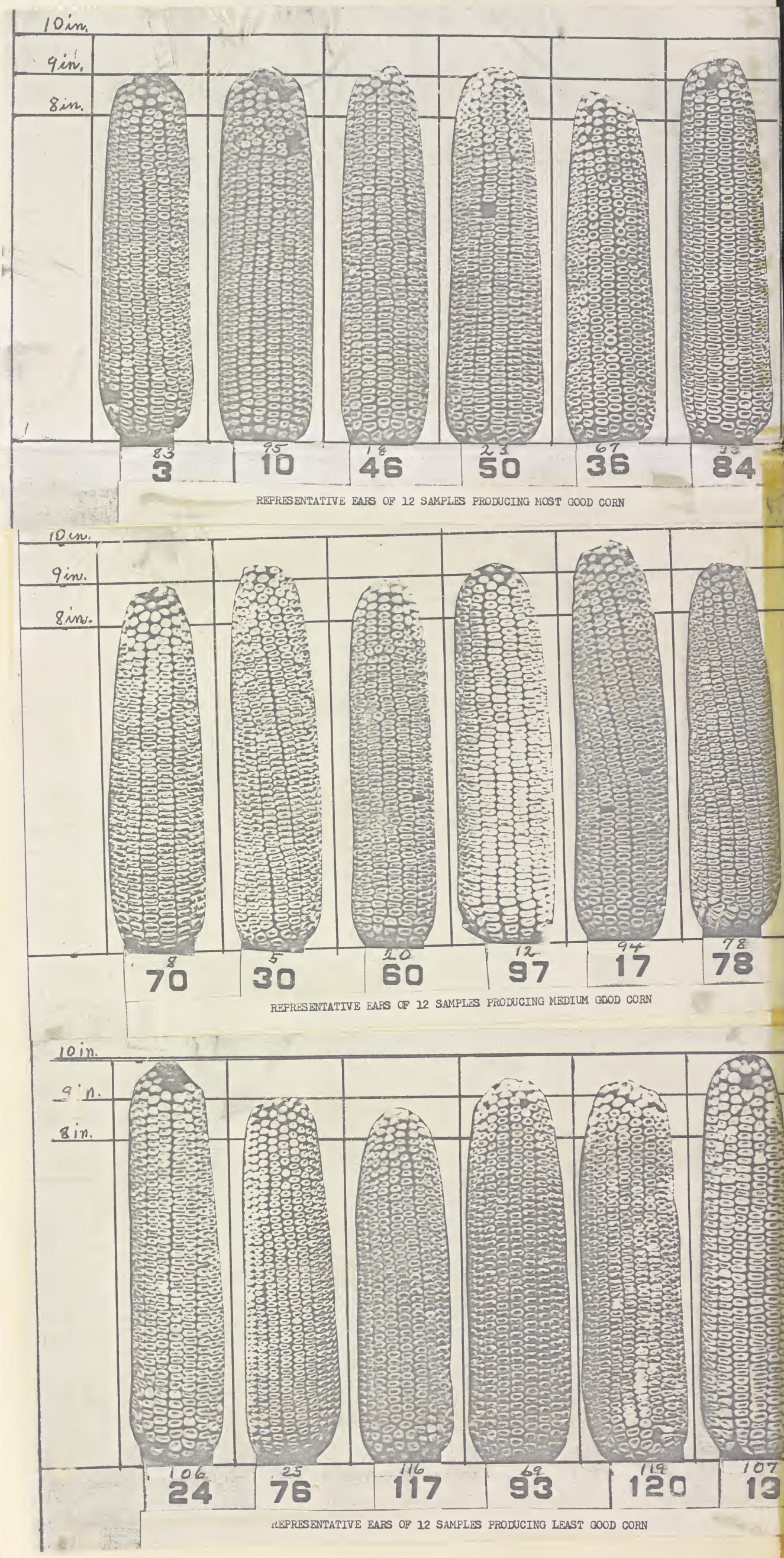
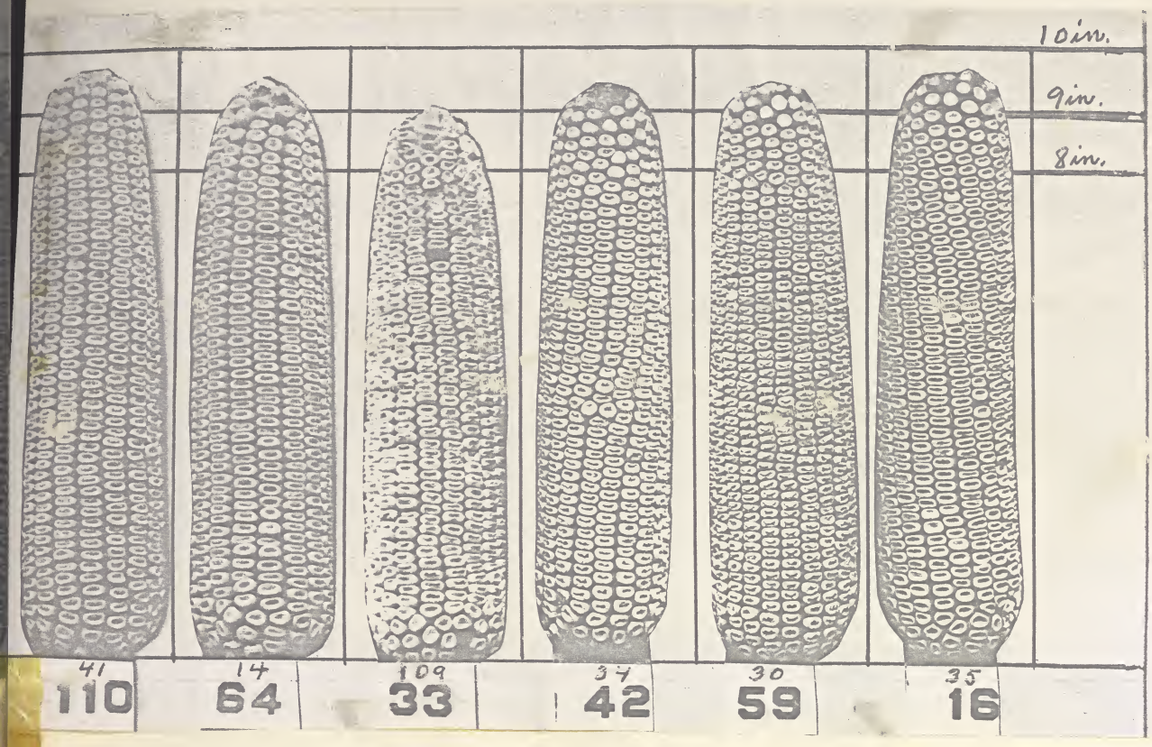


REPRESENTATIVE EARS OF 12 SAMPLES PRODUCING MOST GOOD CORN

REPRESENTATIVE EARS OF 12 SAMPLES PRODUCING MEDIUM GOOD CORN

REPRESENTATIVE EARS OF 12 SAMPLES PRODUCING LEAST GOOD CORN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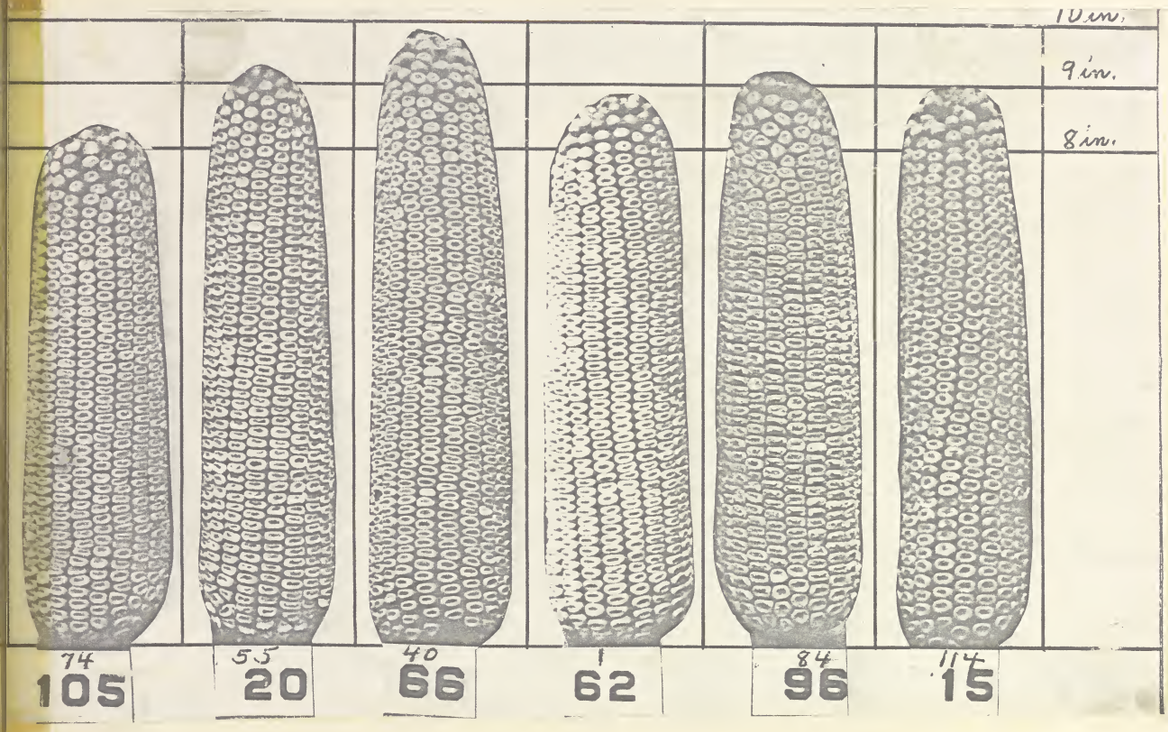
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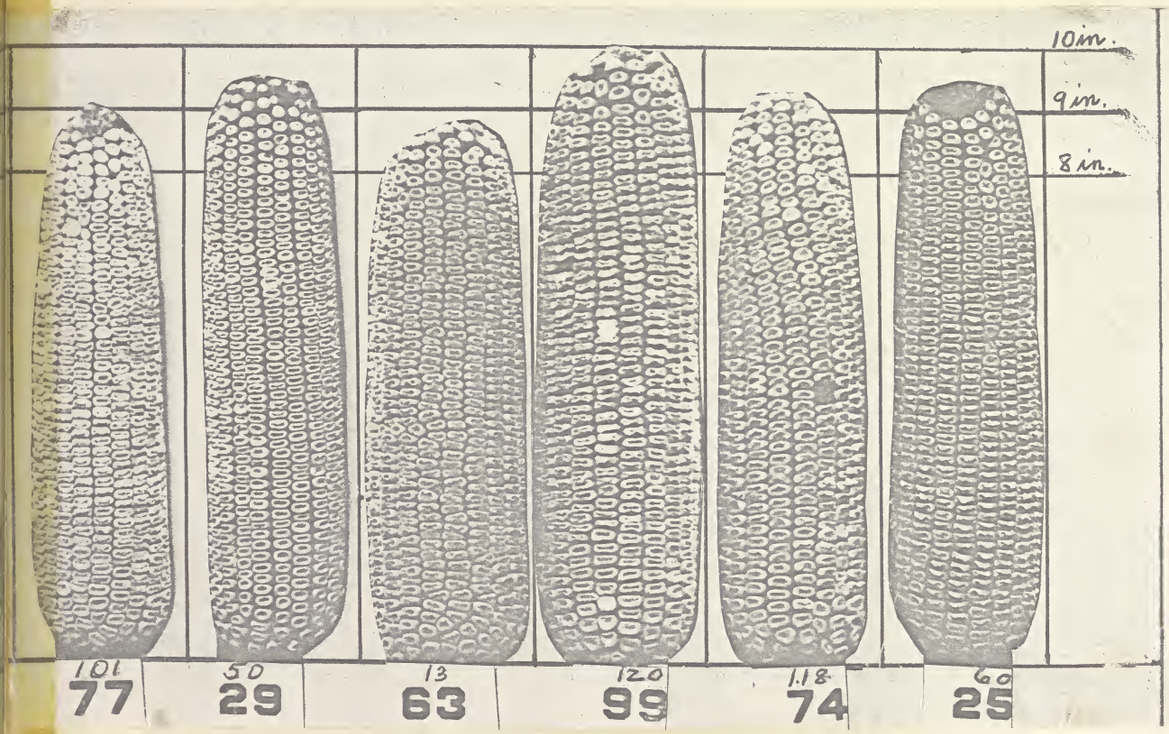
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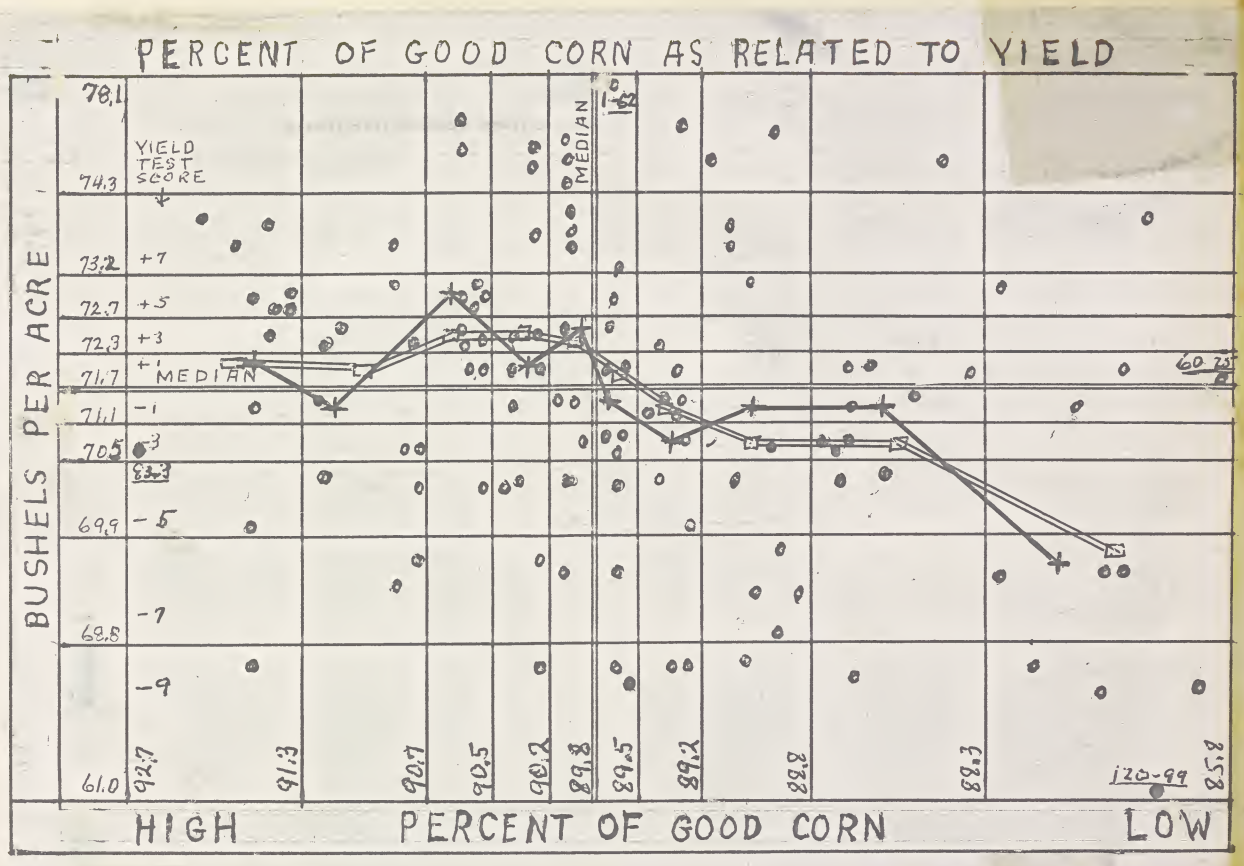

PERCENT OF GOOD CORN AS RELATED TO YIELD AND EACH OF EIGHTEEN OTHER DESCRIPTIVE ITEMS

As the corn on each plot was harvested all ears regardless of size or condition had all husks removed and was weighed. This total weight of all the cron was used when calculating the adjusted yield per acre. After the corn from each plot was weighed the ears were divided into two grades, one of good marketable corn and one of small, nubbins, mouldy ears and badly smutted ears. Smut damage was quite common. The corn in each grade was weighed and the percent of good corn calculated.

The percent of good corn varied from a high of 92.7 for sample No.83-3 to a low of 85.8 for sample No.60-25. See samples of those samples on pages 126-127. The reader should keep in mind that the first number in a sample indicates the final rank in yield of that sample among the 120 samples in the test.

The 12 samples that had the most good corn had an average of 91.7 percent of good corn and produced an average yield of 72.1 bushels of dry shelled corn per acre. The 12 samples that had the least good corn had 87.2 percent of good corn and produced an average of 69.4 bushels per acre. See page 129.

The 12 high yielding samples with an average yield of 75.5 bushels per acre had an average of 89.7% of good corn. The 12 low yielding samples with an average yield of 67.4 bushels per acre had 88.7 percent of good corn. See page 125.

The trend lines on the chart above indicate that the highest yielding samples tended to have medium to high percents of good corn and that a majority of low yielding samples had low percentages of good corn.

Percent of good corn

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	72.1	72.6	69.4	High 78.1				▲	●	Median 71.7			○		Low 61.0	122–125
Percent of good corn	91.7	89.8	87.2	● High 92.7					▲ 89.8					○	Low 85.8	126–129
Percent of moisture	21.4	21.0	23.3	Low 17.9				▲	● 21.4					○	High 24.9	130–133
Percent of shelled corn	85.5	85.9	85.7	High 87.3				▲	85.8		● ○				Low 84.5	134–137
Density of shelled corn	34.5	34.3	34.1	Heavy 35.6			●	▲	34.2 ○						Light 32.4	138–141
Germination index	87.8	89.8	80.1	High 93.8			▲		● 87.1					○	Low 64.5	142–145
Disease index	79.6	75.6	69.8	Little 90.2			●		75.7 ▲			○			Much 58.3	146–149
Weight of ears	12.68	12.59	13.15	Heavy 15.07			○		● △ 12.75						Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	40.07	39.69	39.51	Heavy 42.03			●		▲ Median 39.54 ○						Light 37.58	154–157
Kernel development	62.2	58.5	55.9	Good 78.6			●		▲ 56.4 ○						Poor 38.3	158–161
Indentation index	38.8	46.2	55.4	Smooth 16.5			●		▲ 44.7			○			Rough 87.3	162–165
Length of kernels	13.22	13.44	13.84	Long 15.72		○			▲ 13.41		○				Short 12.47	166–169
Width of kernels	8.08	7.94	7.66	Wide 9.01			●		▲ 7.92					○	Narrow 7.12	170–173
Thickness of kernels	4.22	4.20	4.38	Thick 4.42 ○					● ▲ 4.21						Thin 3.89	174–177
Length of ears	8.99	8.89	8.89	Long 9.67					● ▲ 8.96 ○						Short 8.25	178–181
Diameter of ears	2.116	2.132	2.182	Small 2.012				●	▲ 2.137			○			Large 2.304	182–185
No. of rows of kernels	17.7	18.2	19.4	Small 14.9			●		▲ 18.3					○	Large 2.09	186–189
Color of shank index	69.8	70.4	66.8	White 86.7				▲	● 67.7 ○						Dark 36.7	190–193
Condition of shank index	42.0	38.9	41.6	Smooth 58.3				●	▲ ○ 38.4						Rough 18.3	194–197
Variation index	7.0	7.2	7.2	Uniform 3.0					● 7.0		▲ ○				Uneven 11.0	198–201

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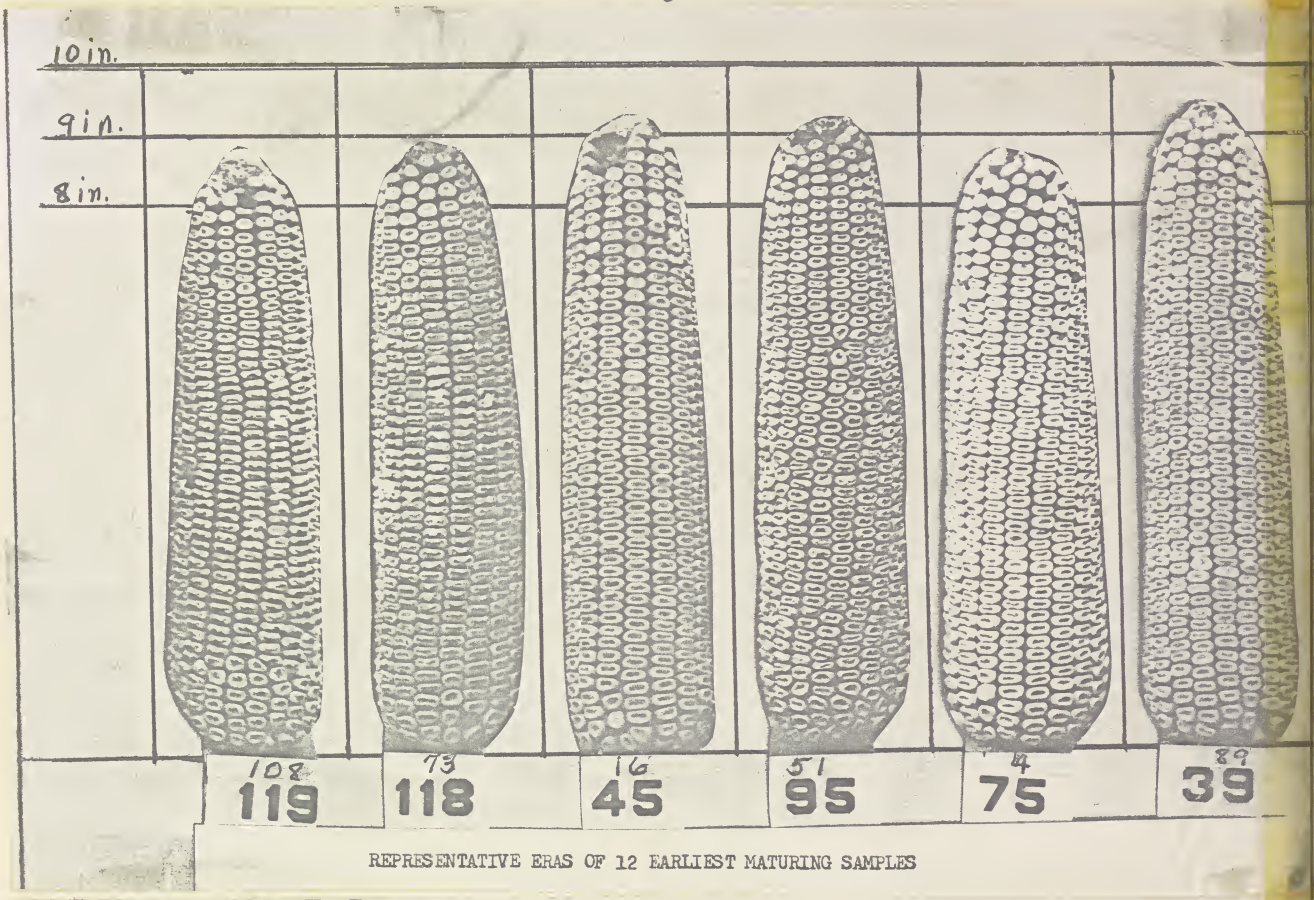


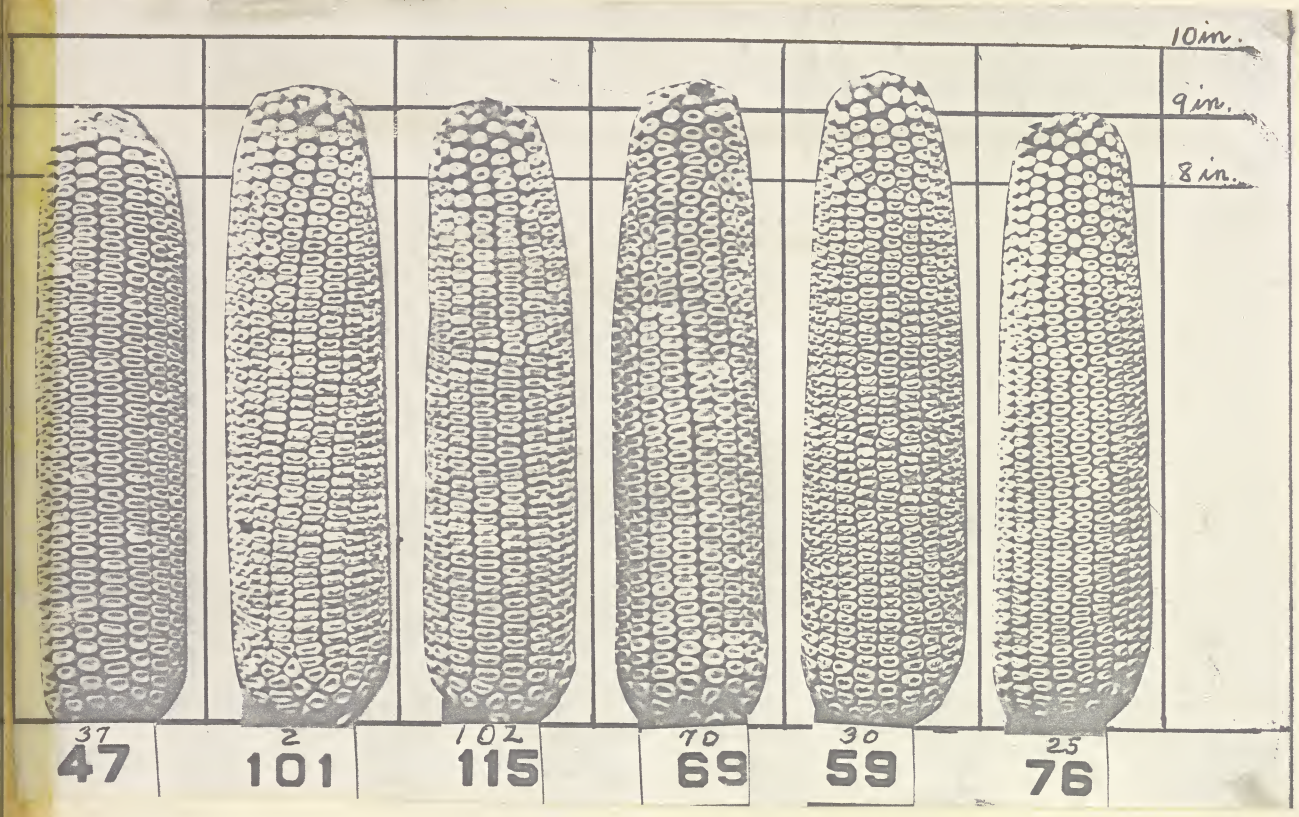
REPRESENTATIVE ERAS OF 12 EARLIEST MATURING SAMPLES

PERCENT OF MOISTURE IN CORN AT HARVEST

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 132-133)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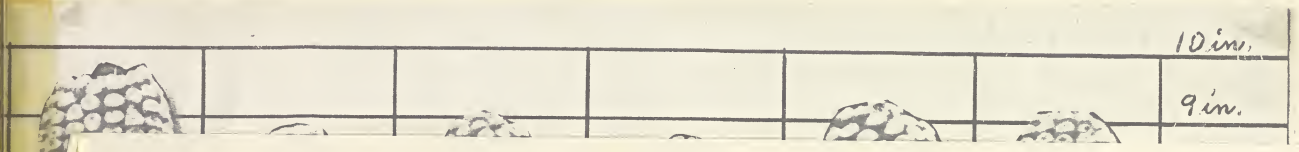
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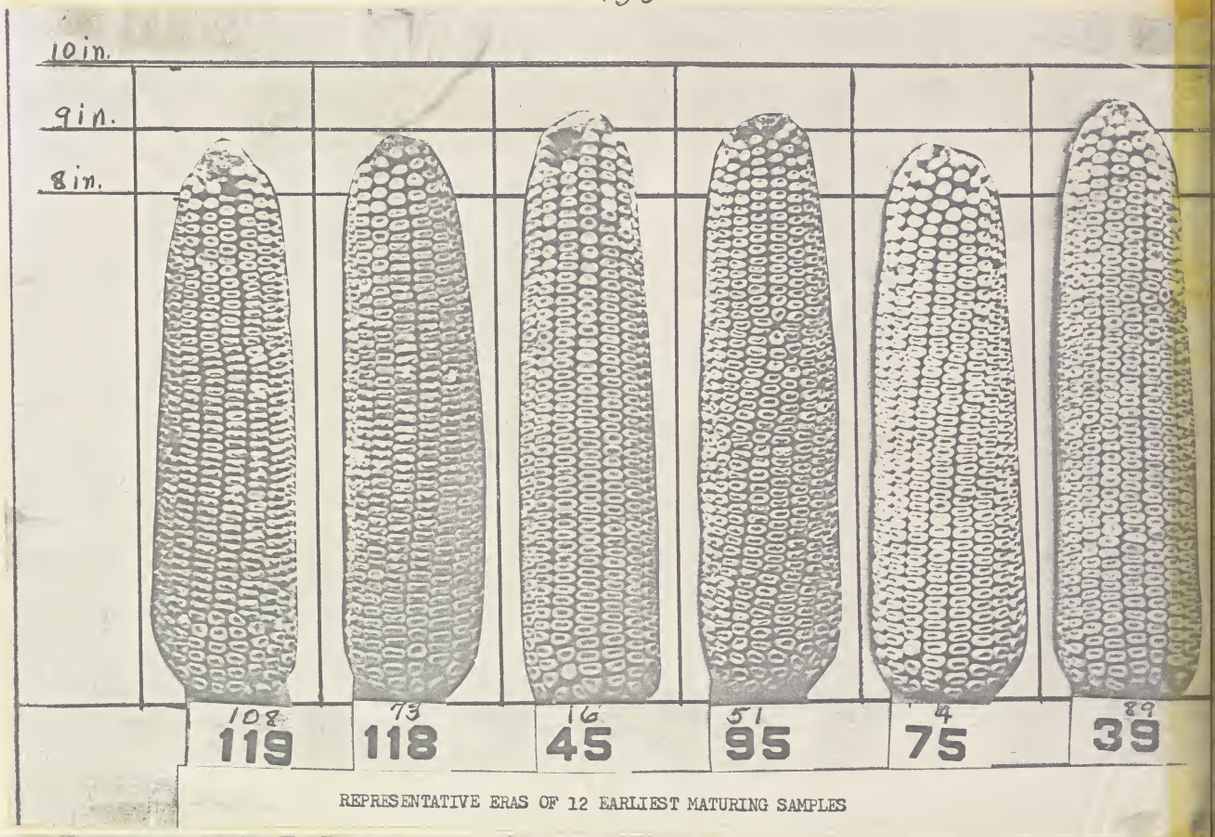
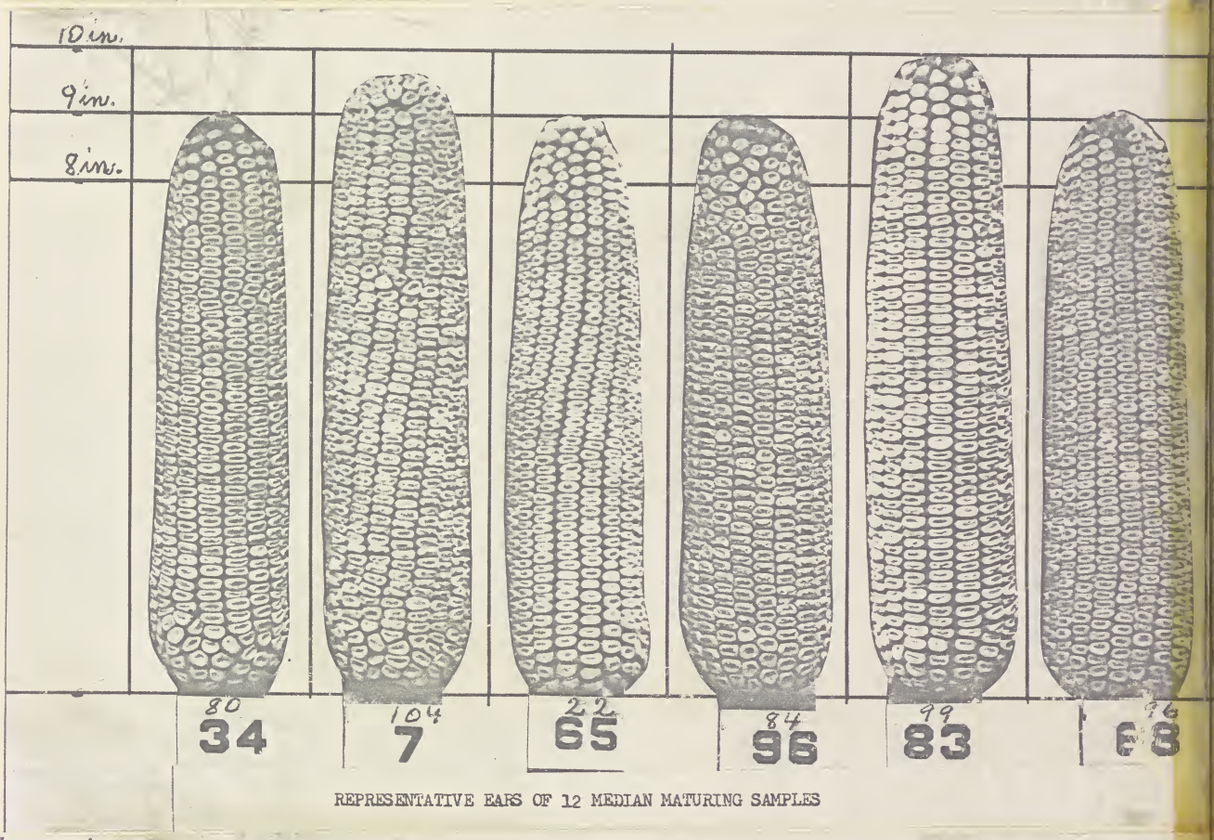
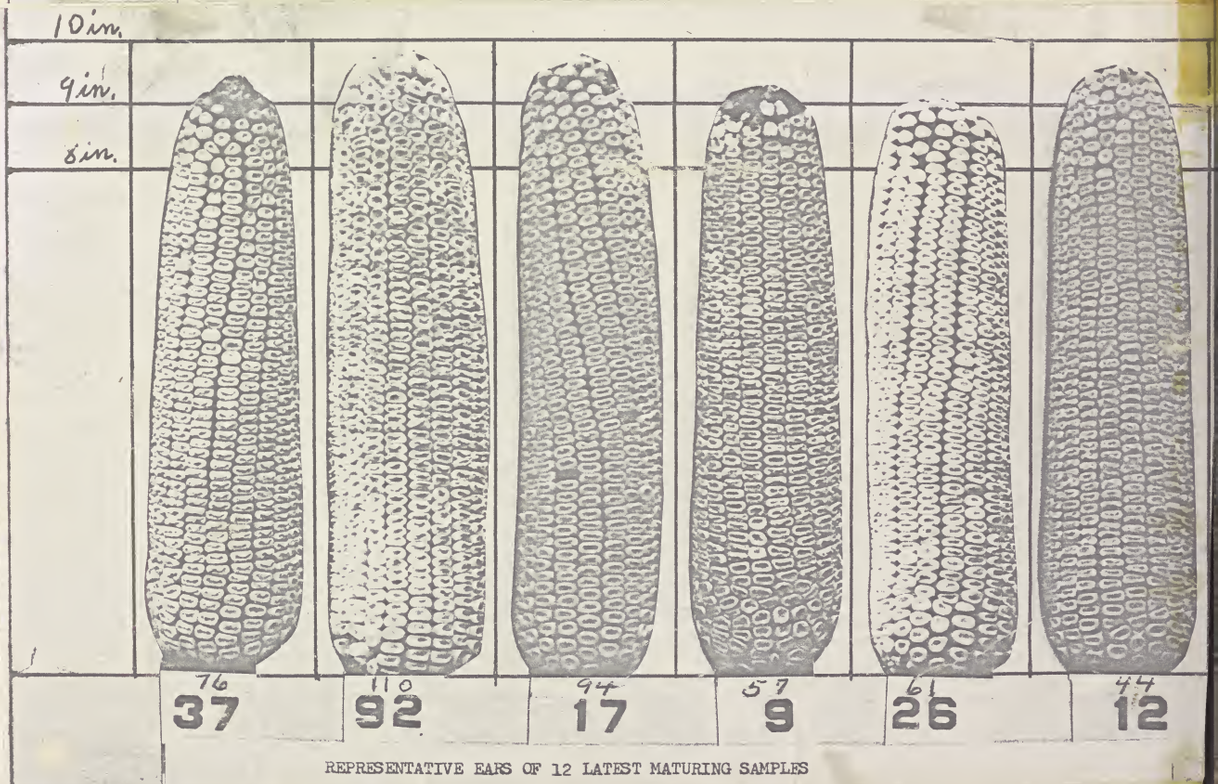


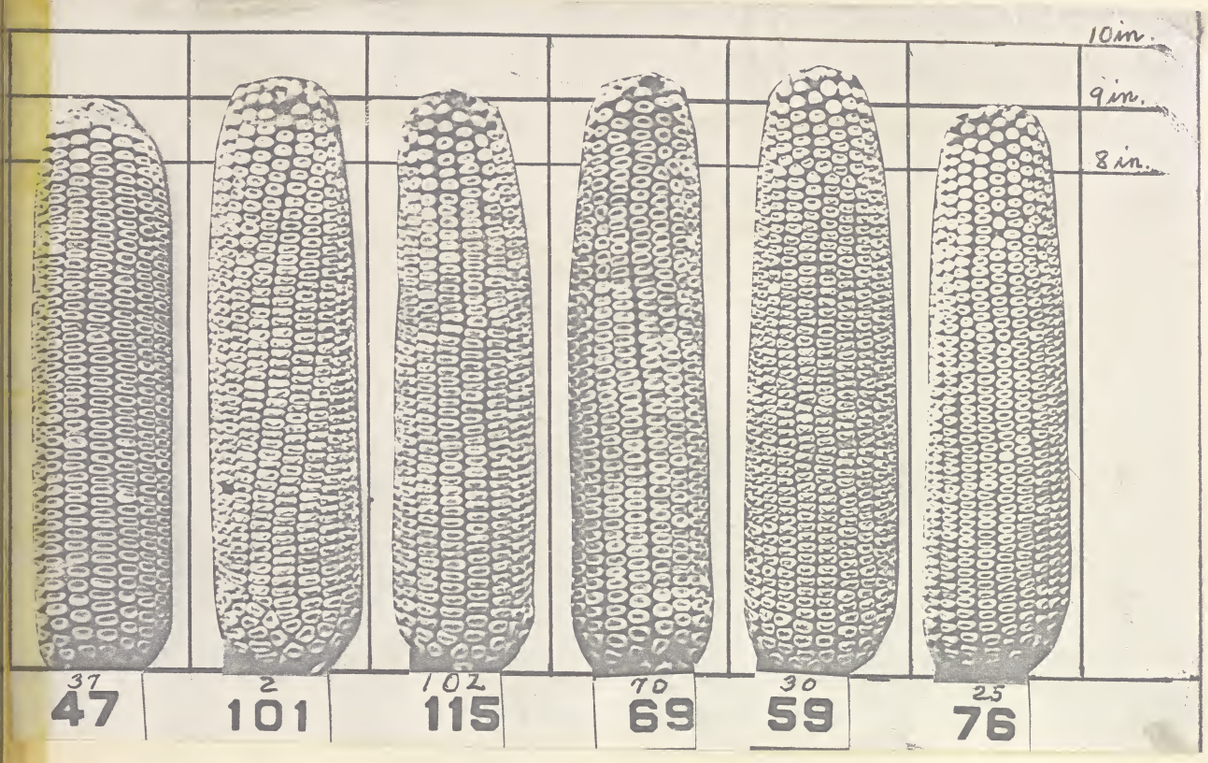
REPRESENTATIVE ERAS OF 12 EARLIEST MATURING SAMPLES



REPRESENTATIVE EARS OF 12 MEDIAN MATURING SAMPLES



REPRESENTATIVE EARS OF 12 LATEST MATURING SAMPLES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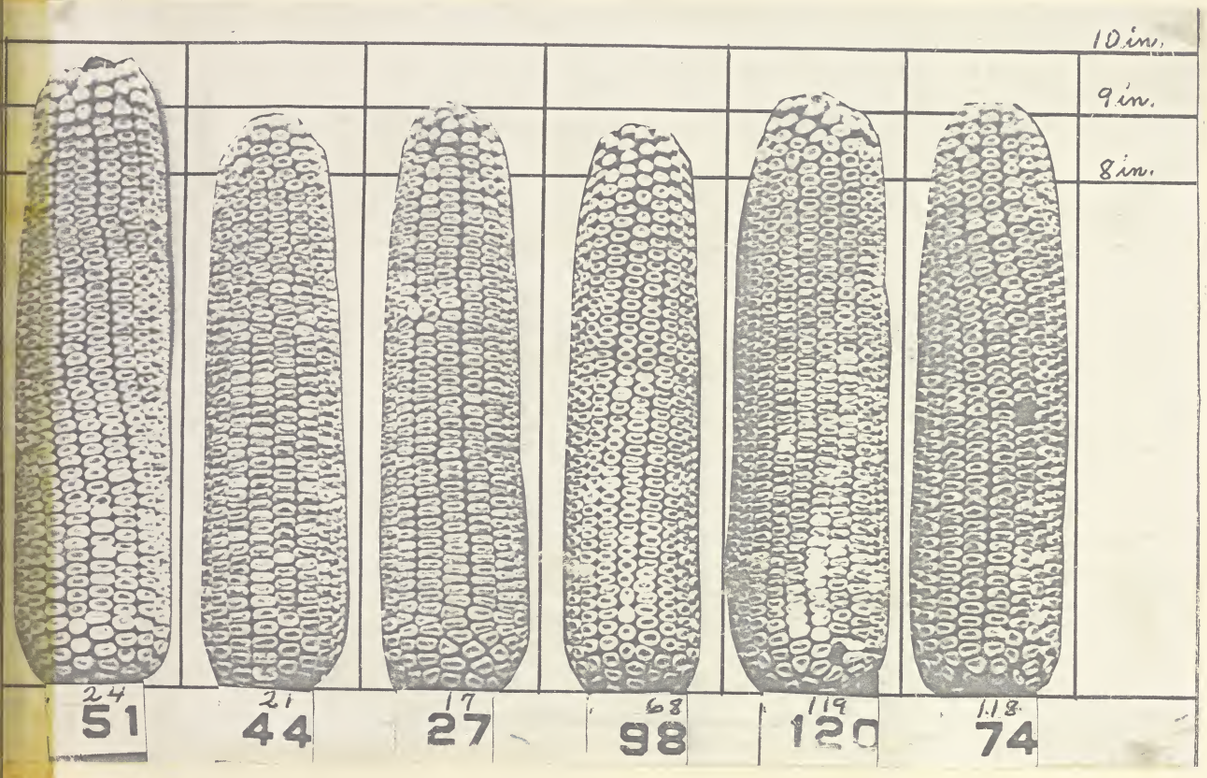
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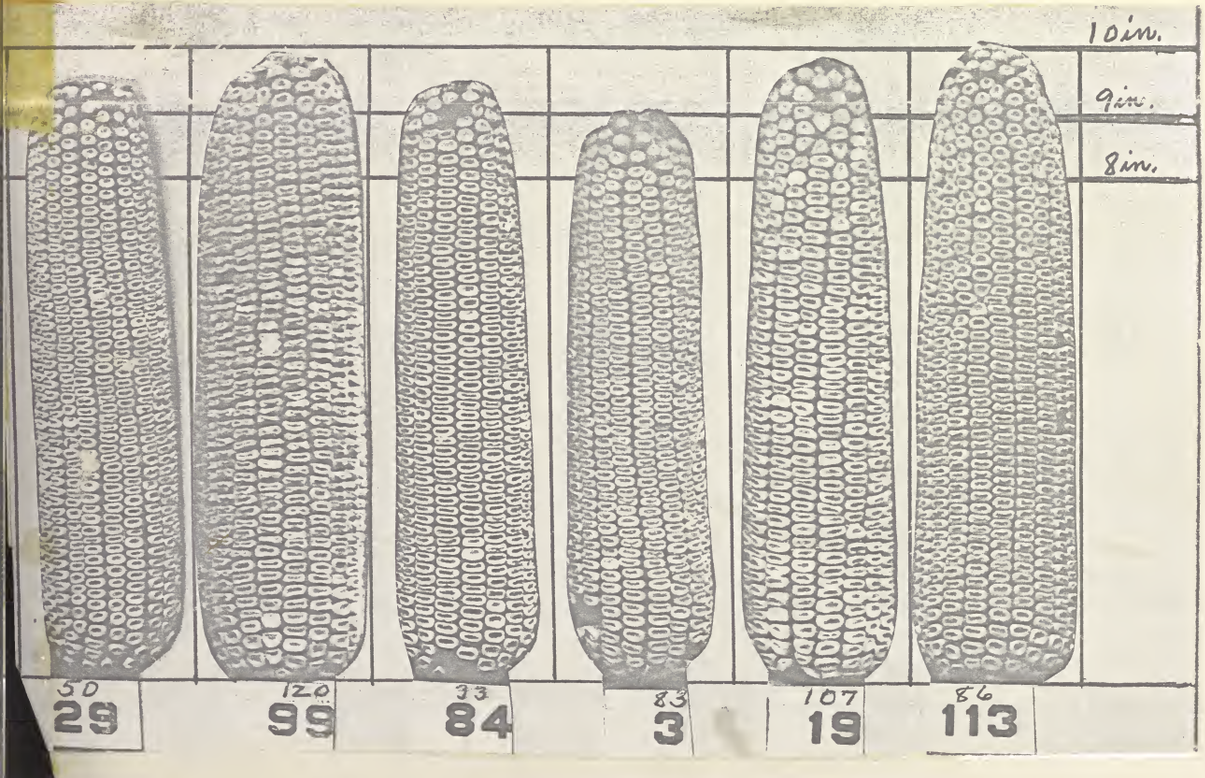
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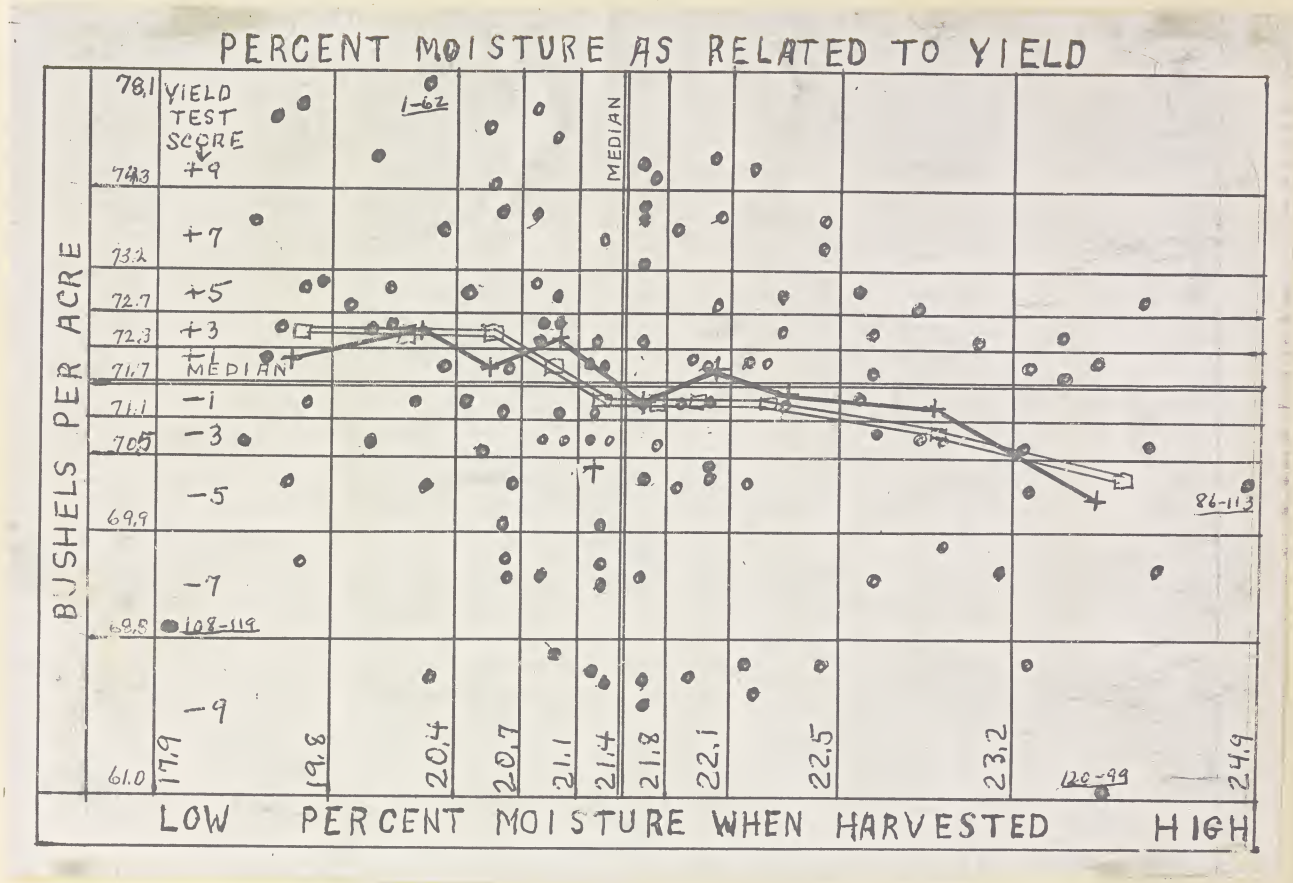


PERCENY OF MOISTURE IN CORN AT HARVEST AS TELATED TO YIELD AND EIGHTEEN OTHER DESCRIPTIVE ITEMS

Twenty representative ears were saved from each sample on each of the two test farms each year. These samples were tied with twine, weighed and hung in the heated Farm Bureau office until dry. They were then weighed, shelled and the shelled corn weighed and tested for moisture. The percent of moisture at harvest was calculated.

The percent of moisture at harvest varied from 17.9 for sample No.108-119 to 24.9 for sample No.86-113. See photoes of the two ears on pages 130 -131.

The 12 earliest samples, as measured by the percent of moisture at harvest, had an average of 19.1 percent moisture and produced an average 72.2 bushels per acre. The 12 latest samples had an average of 23.7 percent moisture and produced 70.1 bushels per acre. See page 136.

The 12 high yielding samples with an average yield of 75.5 bushels had an average of 20.7 percent moisture. The 12 low yielding samples with average yields of 67.4 bushels had an average of 21.9 percent moisture. See page 125.

The trend lines in the chart above indicate that early to medium early maturing samples tended to have a yield advantage over late maturing samples. Sample No.1-62 the highest yielding sample had 20.3 percent moisture and sample No.120-99, the lowest yielding sample, had 23.9 percent moisture. The low percent of moisture at harvest and a high percent of good corn gave Sample No.1-62 a definite price advantage when sold. The local elevator manager reported that corn from George Krug who had sample No.1-62 did regularly grade one to two grades higher than most corn brought to the elevator.

Percent of moisture at harvest

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol.II
Items that required field or laboratory tests																
Bushels per acre	72.2	70.8	70.1	High 78.1					Median 71.7						Low 61.0	122-125
Percent of good corn	89.5	89.7	89.3	High 92.7					89.8						Low 85.8	126-129
Percent of moisture	19.1	21.4	23.7	Low 17.9					21.4						High 24.9	130-133
Percent of shelled corn	85.8	85.6	85.4	High 87.3					85.8						Low 84.5	134-137
Density of shelled corn	34.5	34.3	33.8	Heavy 35.6					34.2						Light 32.4	138-141
Germination index	89.3	86.2	84.5	High 93.8					87.1						Low 64.5	142-145
Disease index	78.7	74.2	74.8	Little 90.2					75.7						Much 58.3	146-149
Weight of ears	11.8	12.67	13.56	Heavy 15.07					12.75						Light 10.35	150-153
Items observed by oldtime corn judges																
Density of ears	39.85	39.69	39.27	Heavy 42.03					Median 39.54						Light 37.58	154-157
Kernel development	74.5	56.9	59.1	Good 78.6					56.4						Poor 38.3	158-161
Indentation index	43.2	45.5	46.8	Smooth 16.5					44.7						Rough 87.3	162-165
Length of kernels	13.27	13.30	13.76	Long 15.72					13.41						Short 12.47	166-169
Width of kernels	7.91	7.91	8.15	Wide 9.01					7.92						Narrow 7.12	170-173
Thickness of kernels	4.11	4.17	4.27	Thick 4.42					4.21						Thin 3.89	174-177
Length of ears	8.71	8.94	8.77	Long 9.67					8.96						Short 8.25	178-181
Diameter of ears	2.086	2.132	21.83	Small 2.012					2.137						Large 2.304	182-185
No. of rows of kernels	17.8	18.2	18.3	Small 14.9					18.3						Large 2.09	186-189
Color of shank index	69.1	61.9	69.0	White 86.7					67.7						Dark 36.7	190-193
Condition of shank index	41.2	34.2	41.6	Smooth 58.3					38.4						Rough 18.3	194-197
Variation index	6.8	7.3	7.1	Uniform 3.0					7.0						Uneven 11.0	198-201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

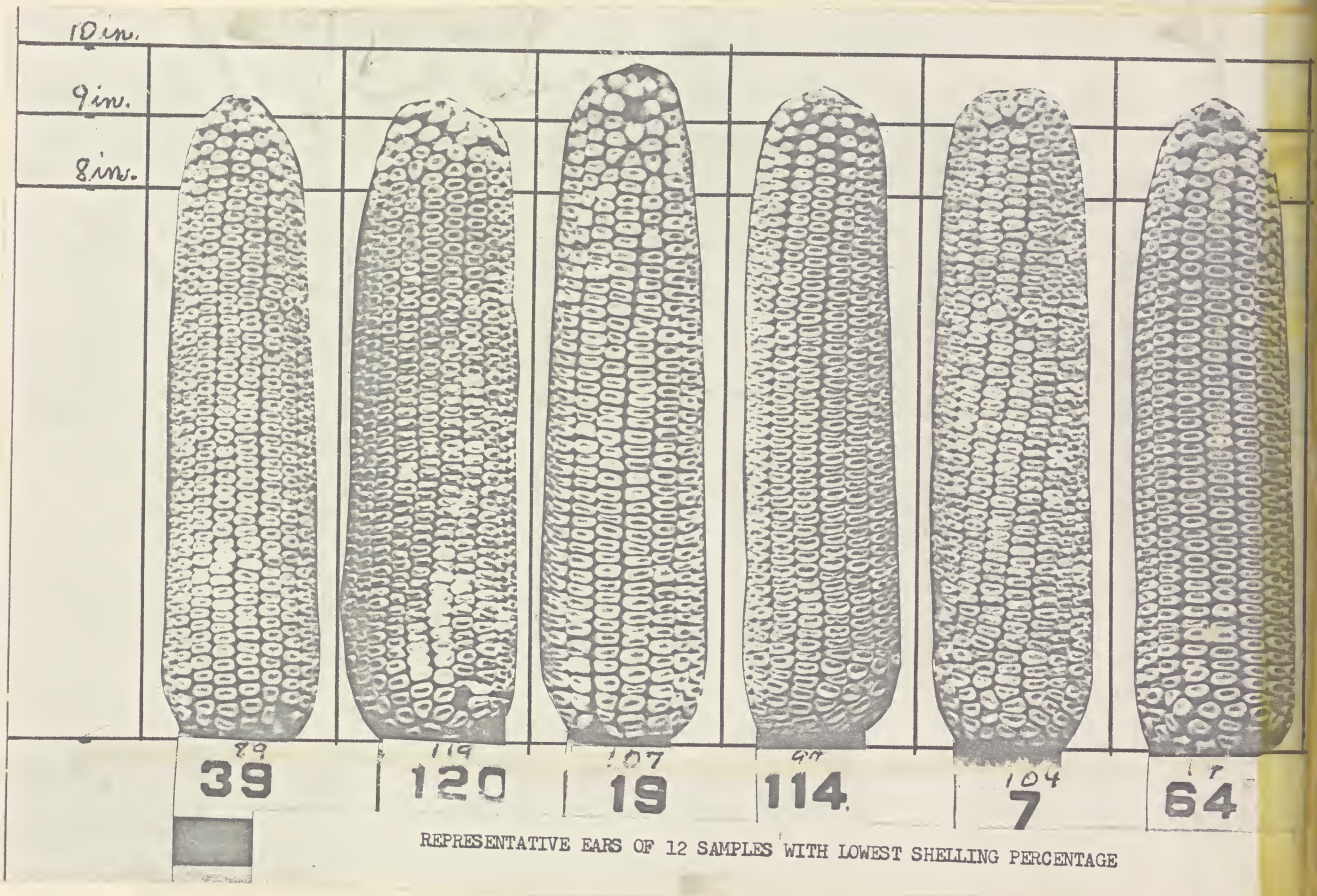
PERCENT OF SHELLED CORN

as related to

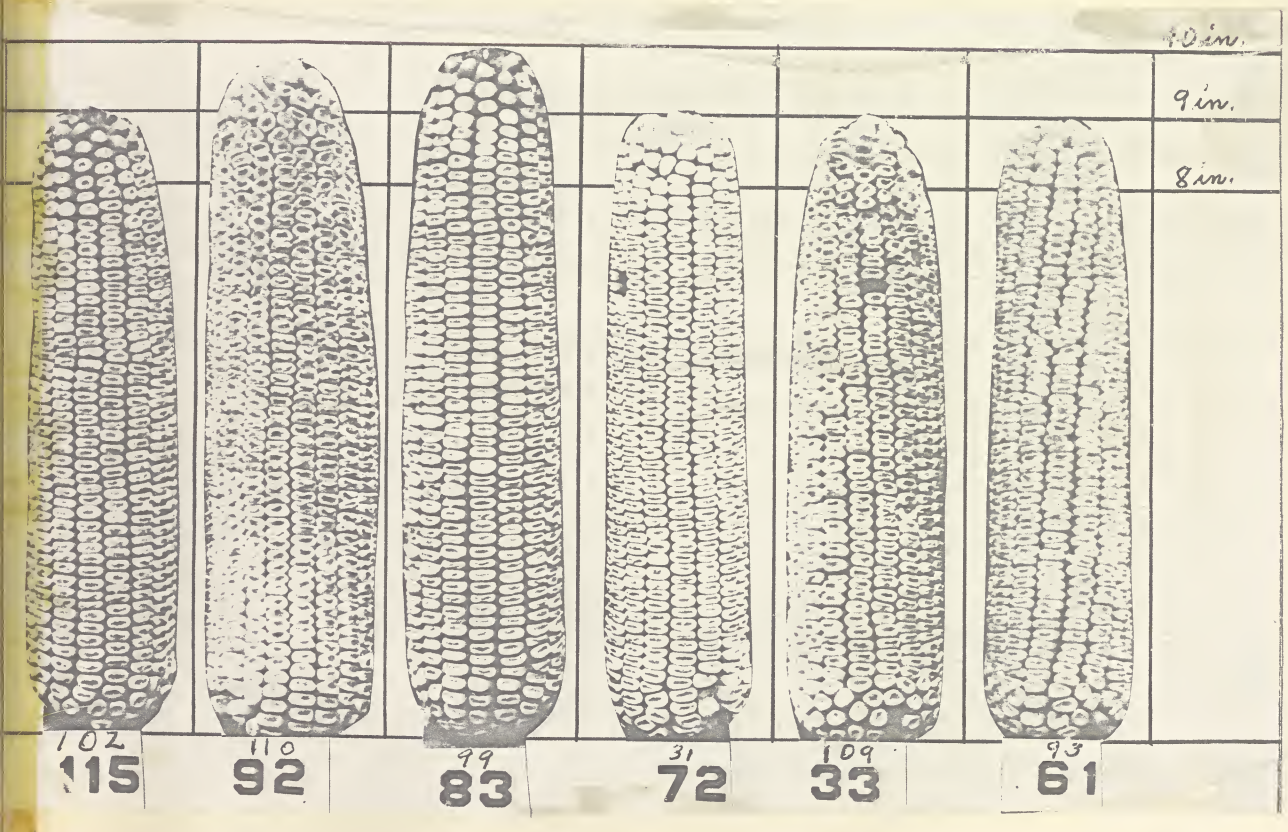
YIELD and 18 OTHER DESCRIPTIVE ITEMS

(See pages 136-137)

REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN SHELLING PERCENTAGE



REPRESENTATIVE EARS OF 12 SAMPLES WITH LOWEST SHELLING PERCENTAGE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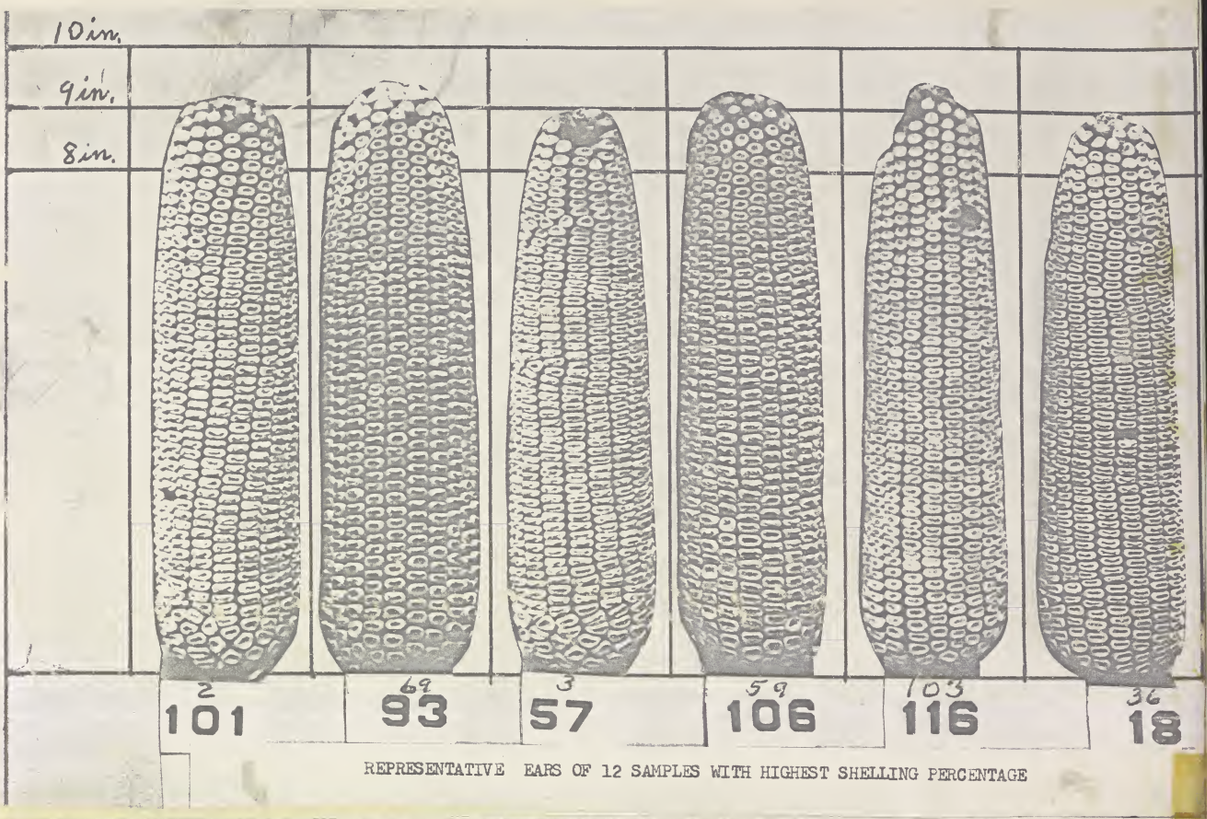
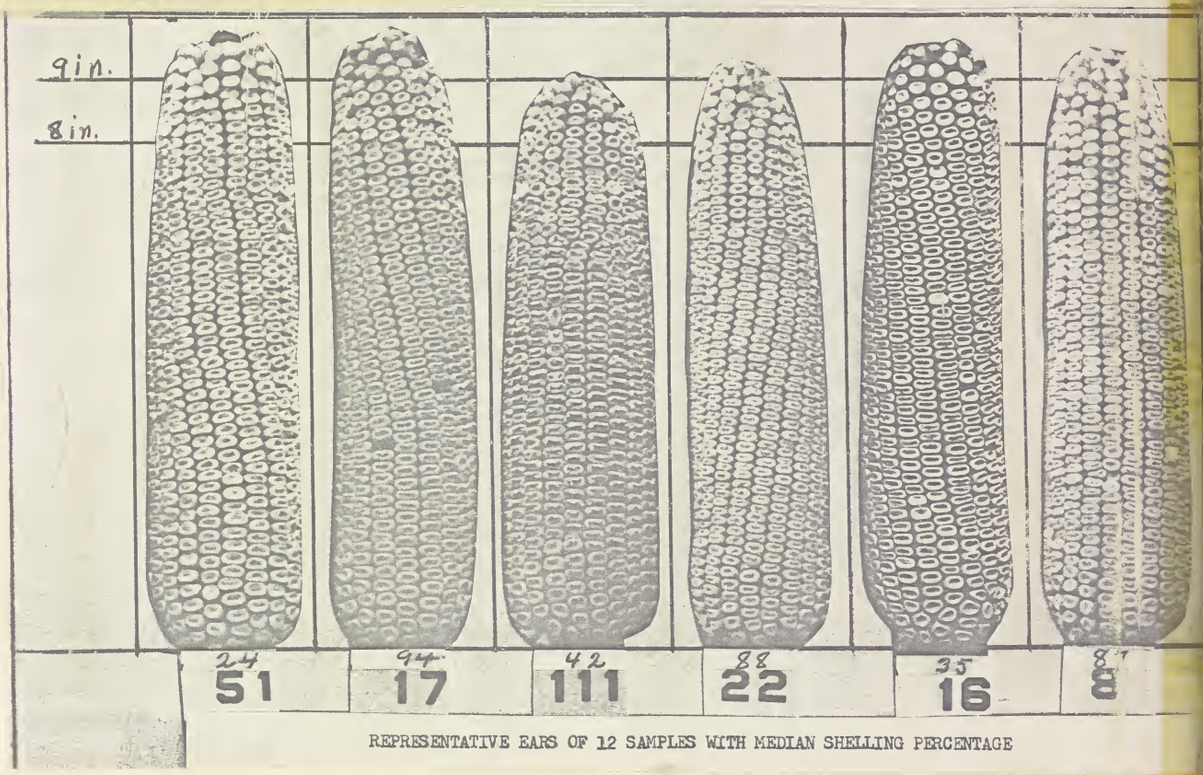
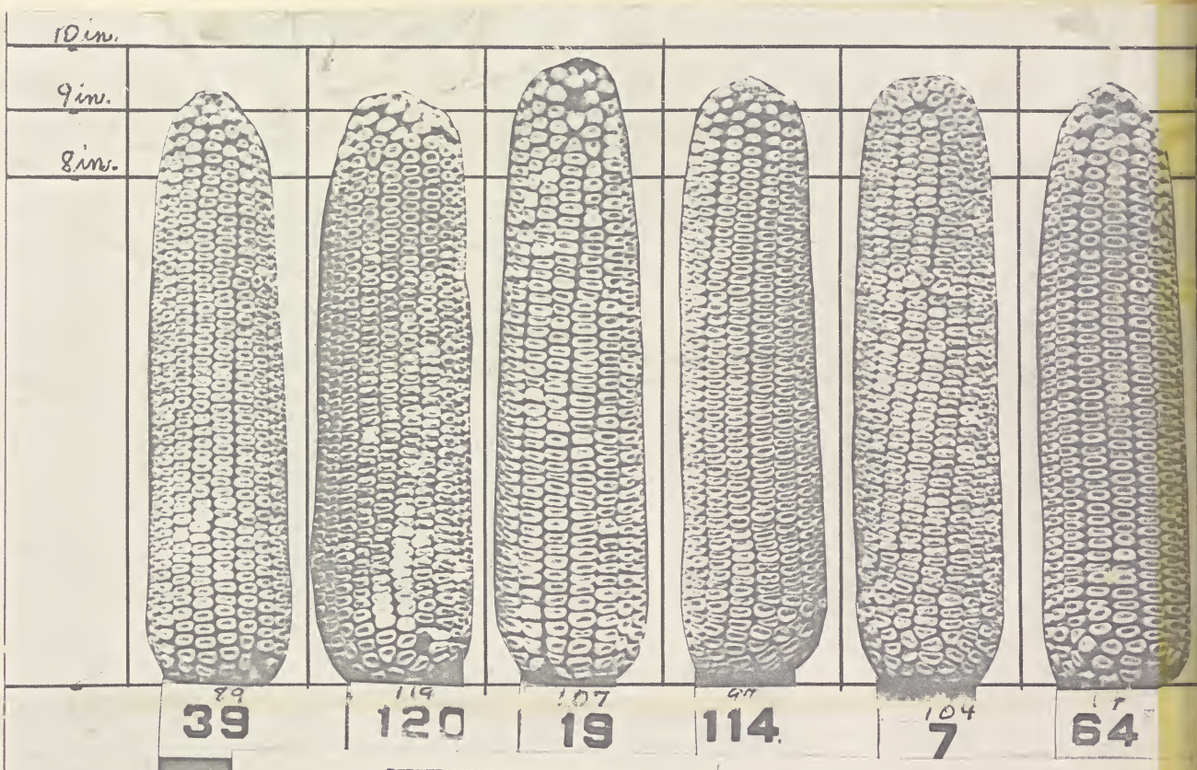


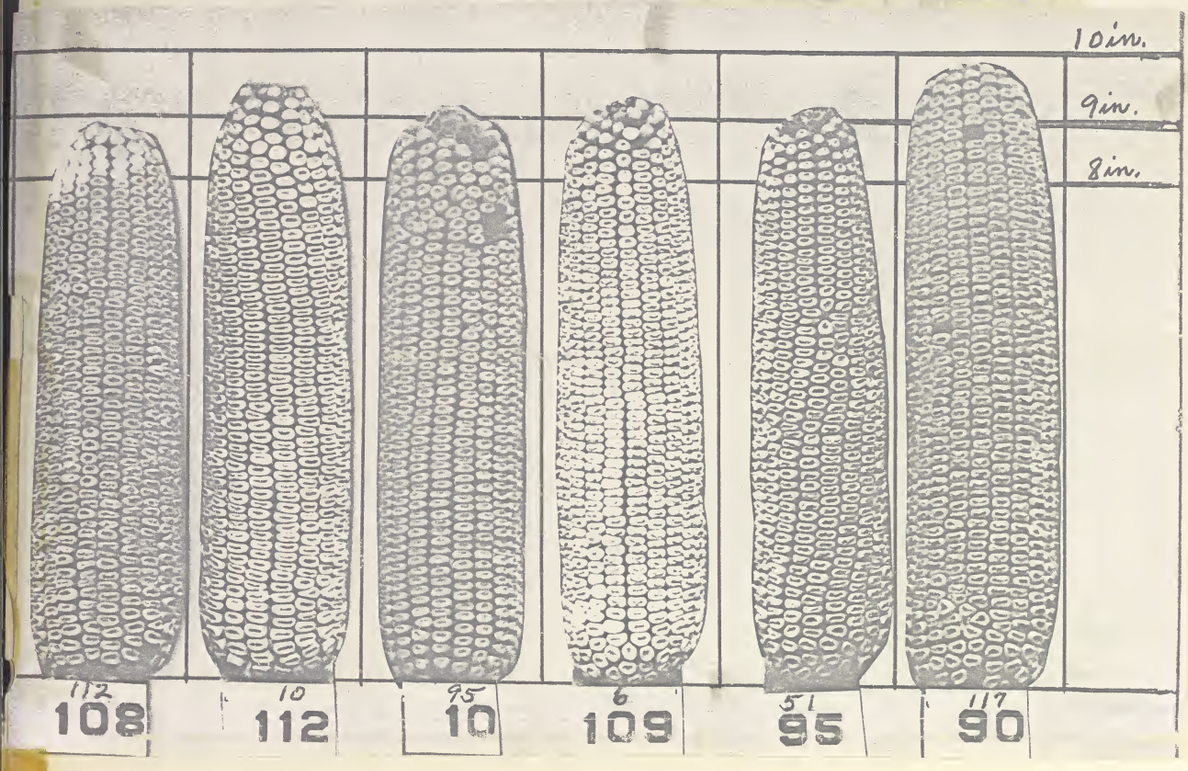
REPRESENTATIVE EARS OF 12 SAMPLES WITH HIGHEST SHELLING PERCENTAGE



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN SHELLING PERCENTAGE



REPRESENTATIVE EARS OF 12 SAMPLES WITH LOWEST SHELLING PERCENTAGE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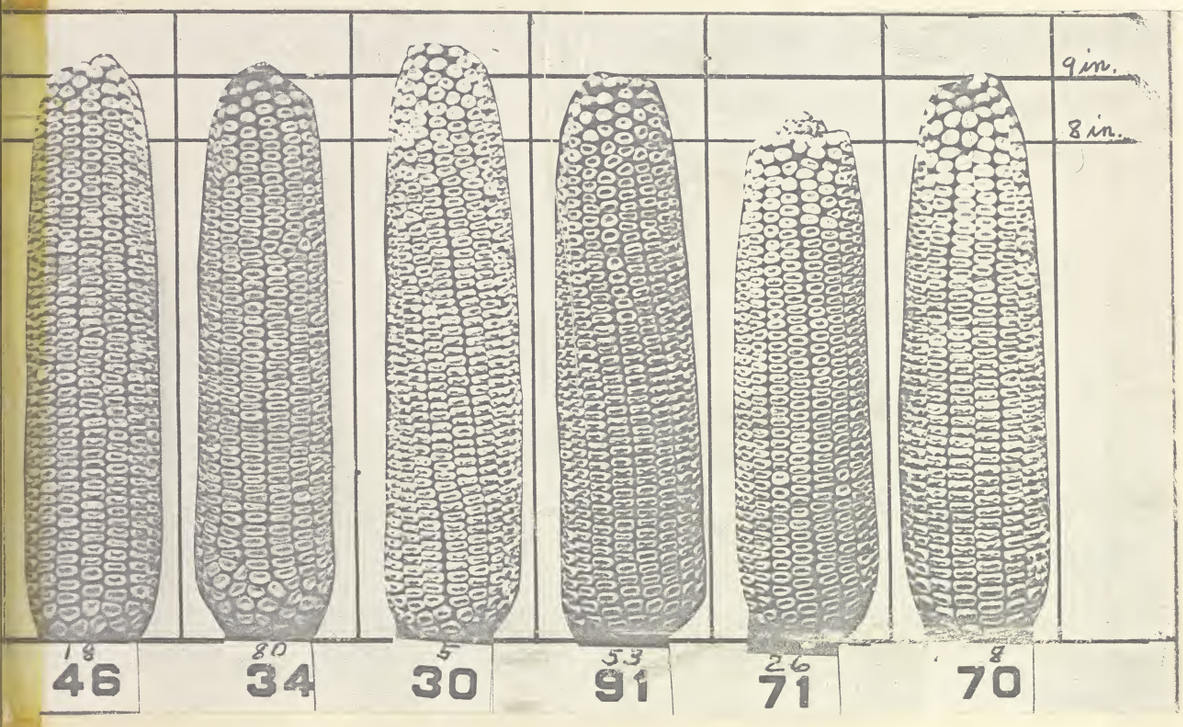
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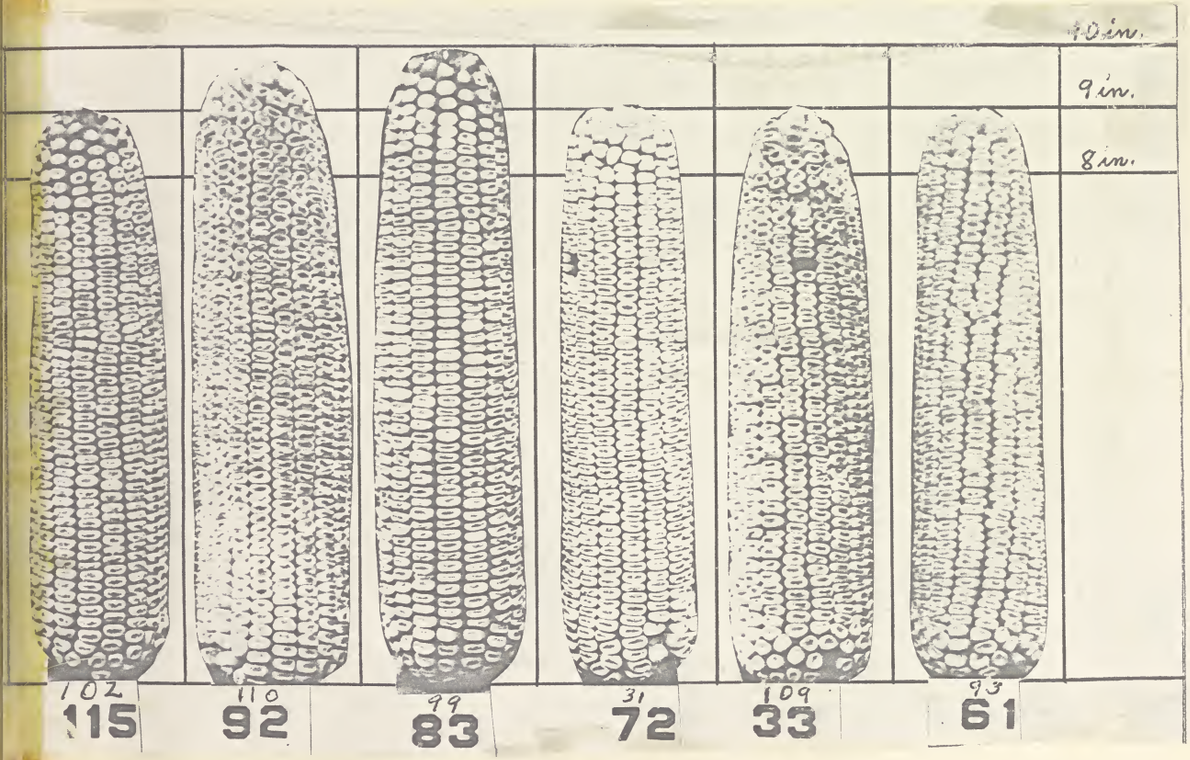
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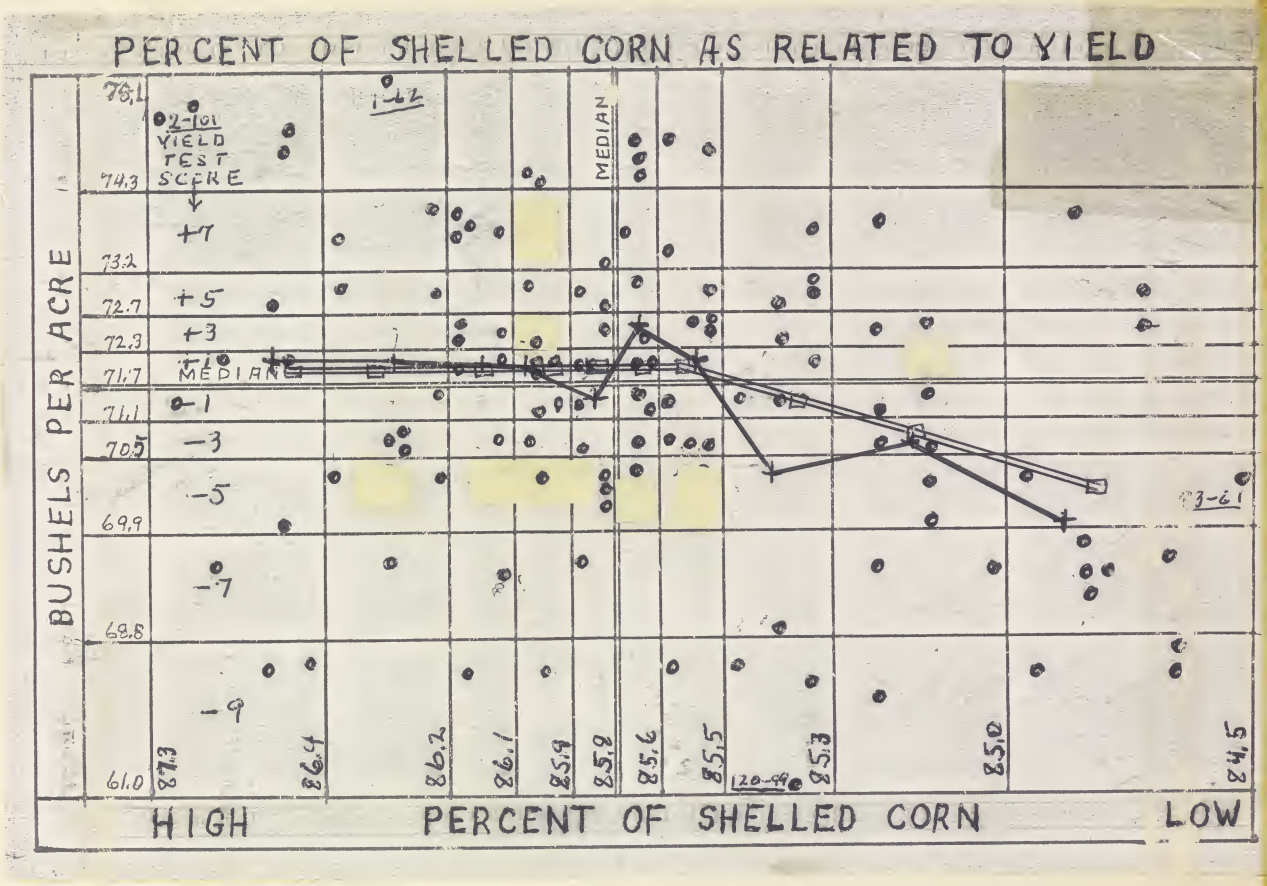


PERCENT OF SHELLED CORN AS RELATED TO YIELD
AND EACH OF EIGHTEEN OTHER DESCRIPTIVE ITEMS

Twenty representative ears of each farmer's sample were saved on each of the two test farms each year when the corn was harvested. These samples were tied together with twine, weighed and hung in the Farm Bureau office to dry. When well dried they were shelled and the shelled corn weighed. The percent of shelled corn was then calaulated.

The percent of shelled corn varied from 87.3 percent for sample No.2-101 with a yield of 76.3 bushels per acre to 84.5 percent for sample No.93-61 with a yield of 70.1 bushels. See representative ears of those samples on pages 134-135.

The 12 samples that had the highest percent of shelled corn had 86.9 percent and produced an average yield of 72.1 bushels per acre. The 12 samples that had the lowest percent of shelled corn had 84.8 percent and produced 69.9 bushels per acre. See page 137.

The 12 high yielding samples with an average yield of 75.5 bushels had 86.2 percent of shelled corn. The 12 low yielding samples produced 67.4 bushels per acre and 85.5 percent of shelled corn. See page 125.

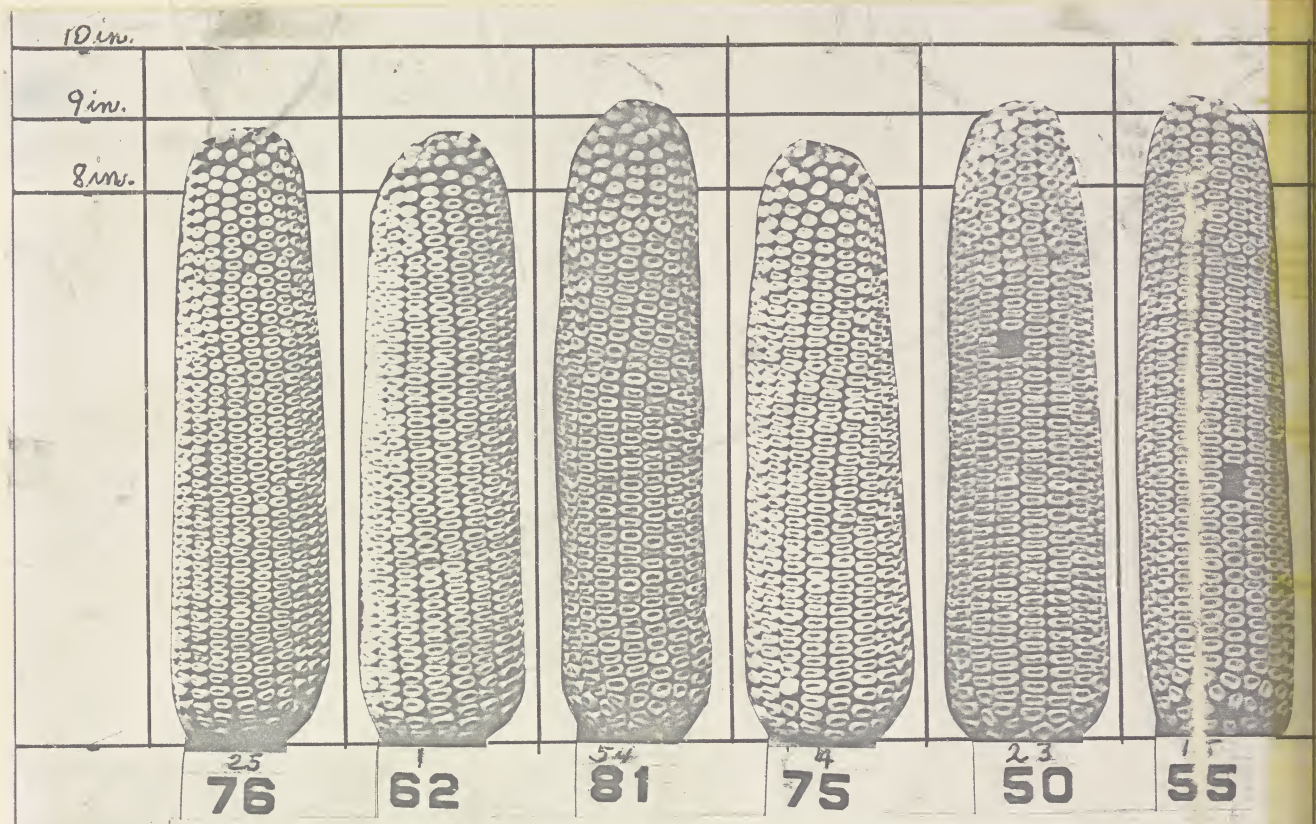
The distribution and trend line in the chart above indicate that none of the 12 high yielding samples had low percentages of shelled corn and that most of the low yielding samples had low percentages of shelled corn.

Percent of shelled corn

as related to
BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	72.1	72.4	69.9	High 78.1				▲	●			○			Low 61.0	122–125
Percent of good corn	89.5	91.1	89.9	High 92.7		▲				●				○	Low 85.8	126–129
Percent of moisture	21.2	21.4	21.4	Low 17.9					● ▲					○	High 24.9	130–133
Percent of shelled corn	86.8	85.8	84.8	High 87.3					●	▲					Low 84.5 ○	134–137
Density of shelled corn	33.8	34.2	34.4	Heavy 35.6			○		▲			●			Light 32.4	138–141
Germination index	88.6	86.6	86.8	High 93.8				●		▲	○				Low 64.5	142–145
Disease index	72.9	79.1	75.9	Little 90.2			▲		○		●				Much 58.3	146–149
Weight of ears	13.24	12.67	12.53	Heavy 15.07			●			▲	○				Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	39.39	39.84	39.24	Heavy 42.03				▲	Median 39.54	●	○				Light 37.58	154–157
Kernel development	55.4	59.6	61.4	Good 78.6				▲ ○		●					Poor 38.3	158–161
Indentation index	56.4	45.1	41.9	Smooth 16.5					○ 44.7	▲			●		Rough 87.3	162–165
Length of kernels	13.95	13.37	13.28	Long 15.72		●				13.41 ▲	○				Short 12.47	166–169
Width of kernels	7.82	7.92	8.22	Wide 9.01			○		▲ 7.92		●				Narrow 7.12	170–173
Thickness of kernels	4.16	4.22	4.19	Thick 4.42					▲ 4.21 ○		●				Thin 3.89	174–177
Length of ears	8.98	8.87	9.01	Long 9.67					● ○ 8.96	▲					Short 8.25	178–181
Diameter of ears	2.181	2.136	2.125	Small 2.012				○	2.137		▲		●		Large 2.304	182–185
No. of rows of kernels	19.0	18.4	17.3	Small 14.9	○				18.3 ▲		●				Large 2.09	186–189
Color of shank index	65.6	66.4	74.4	White 86.7			○		● 67.7 ▲						Dark 36.7	190–193
Condition of shank index	42.2	41.1	38.2	Smooth 58.3				●	▲ 38.4 ○						Rough 18.3	194–197
Variation index	6.8	7.7	7.3	Uniform 3.0			●		7.0		▲ ○				Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



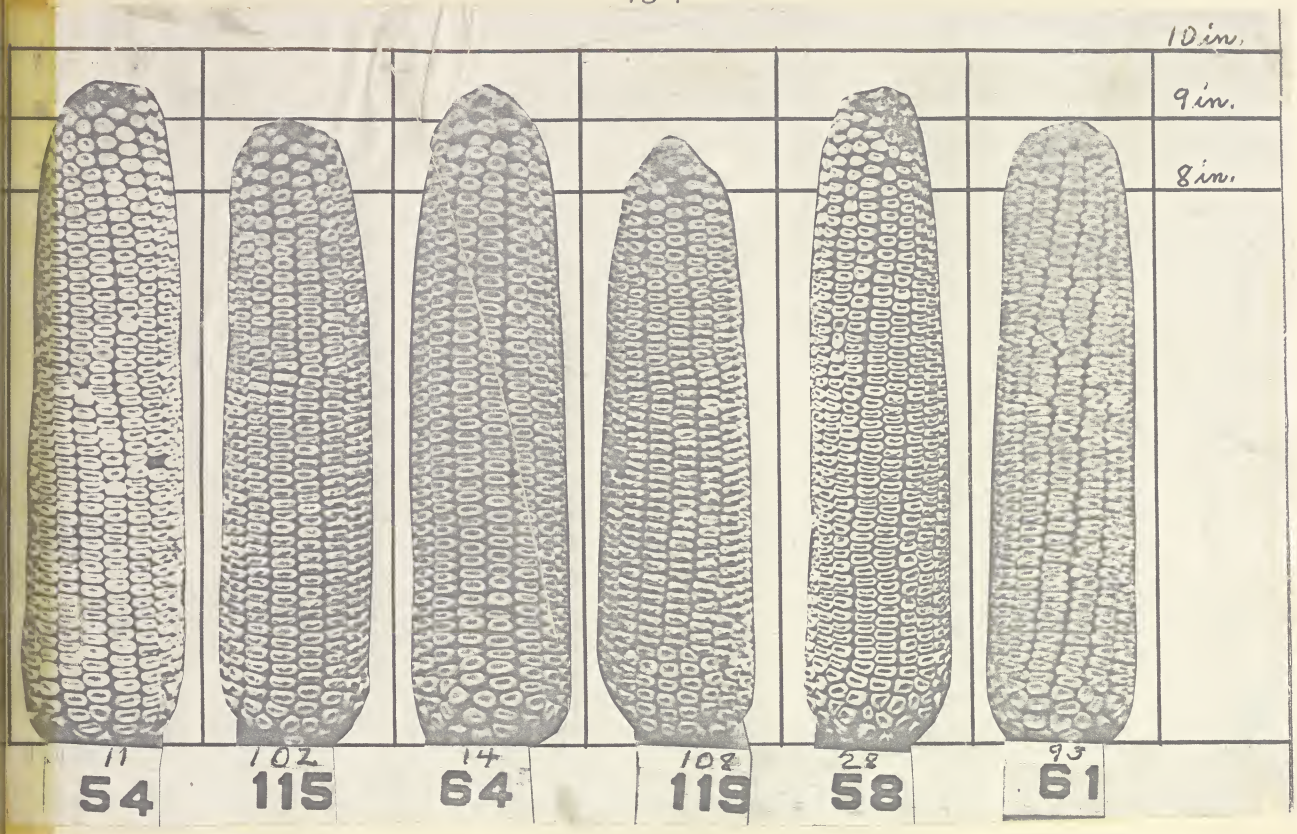
REPRESENTATIVE EARS OF 12 SAMPLES WITH THE GREATEST DENSITY OF KERNELS

DENSITY OF KERNELS(WEIGHT PER BUSHEL)

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(SEE PAGES 140-141)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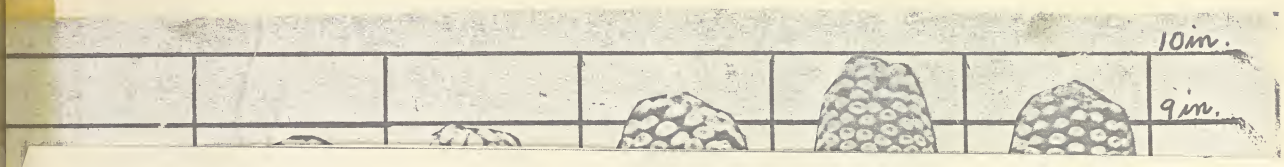
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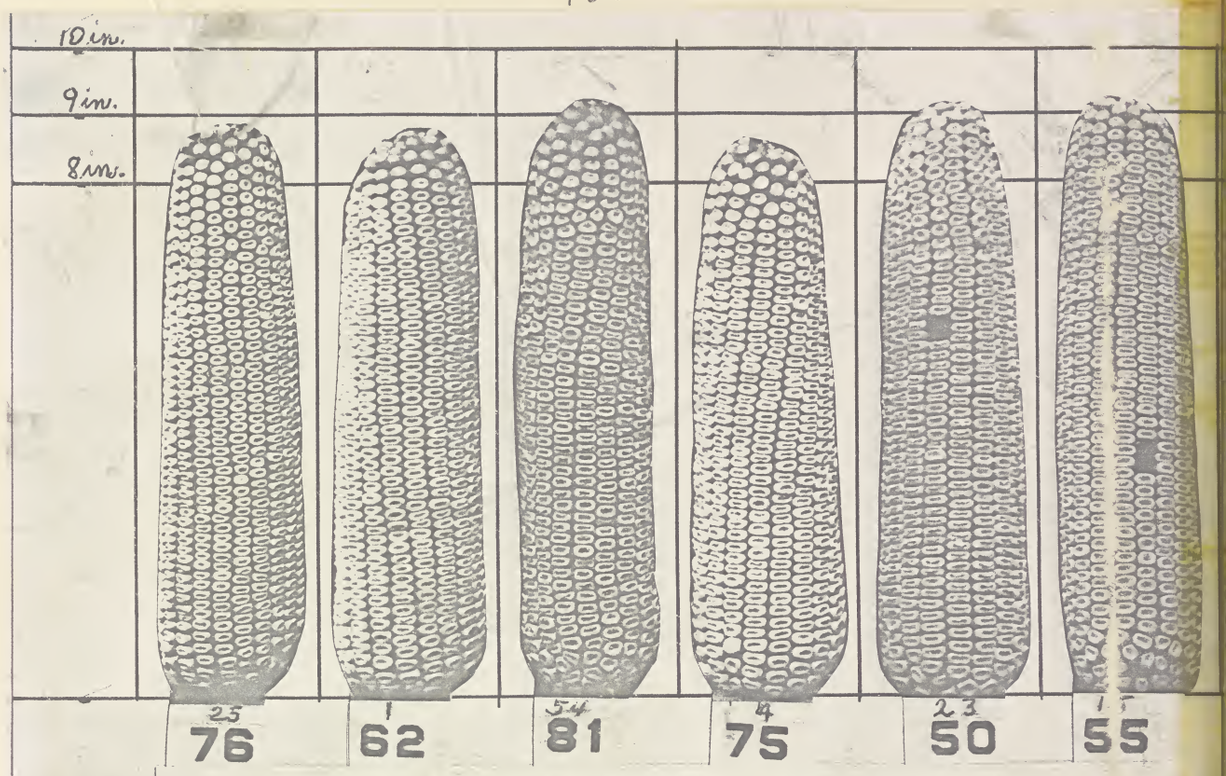
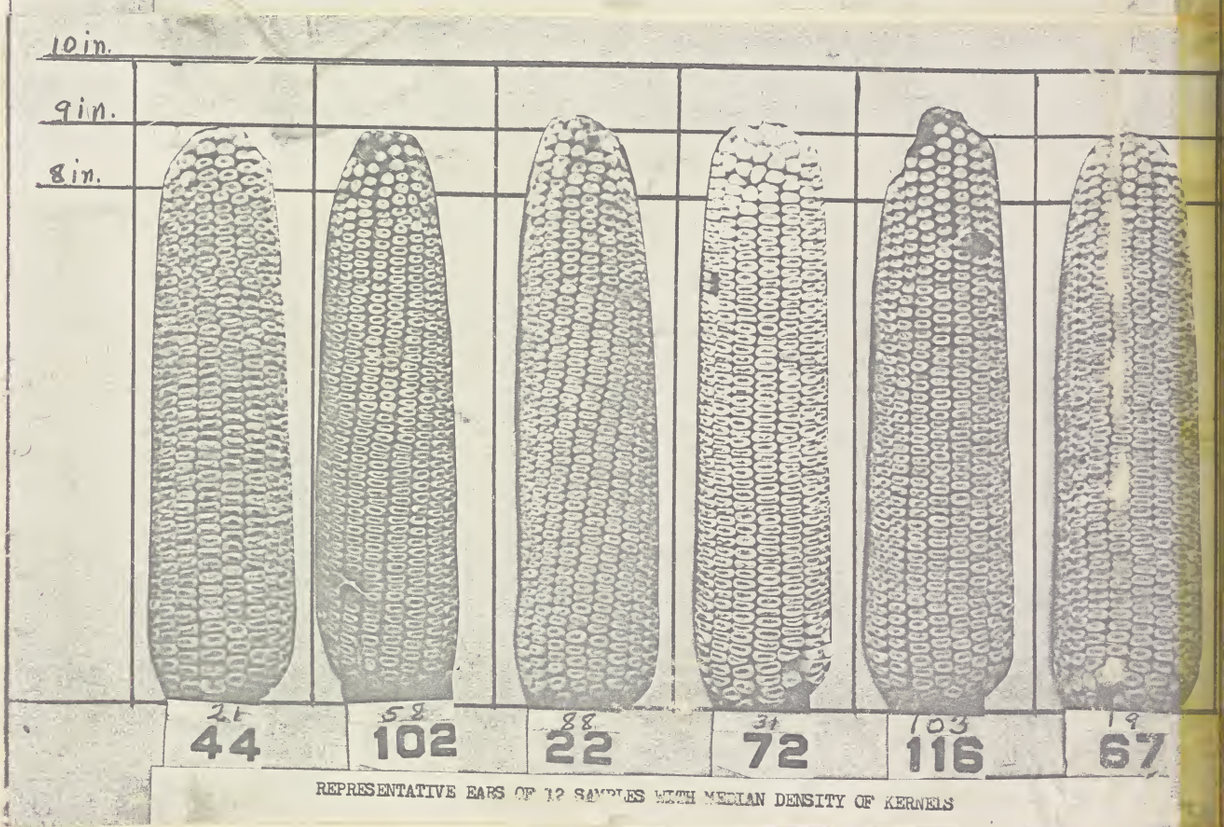
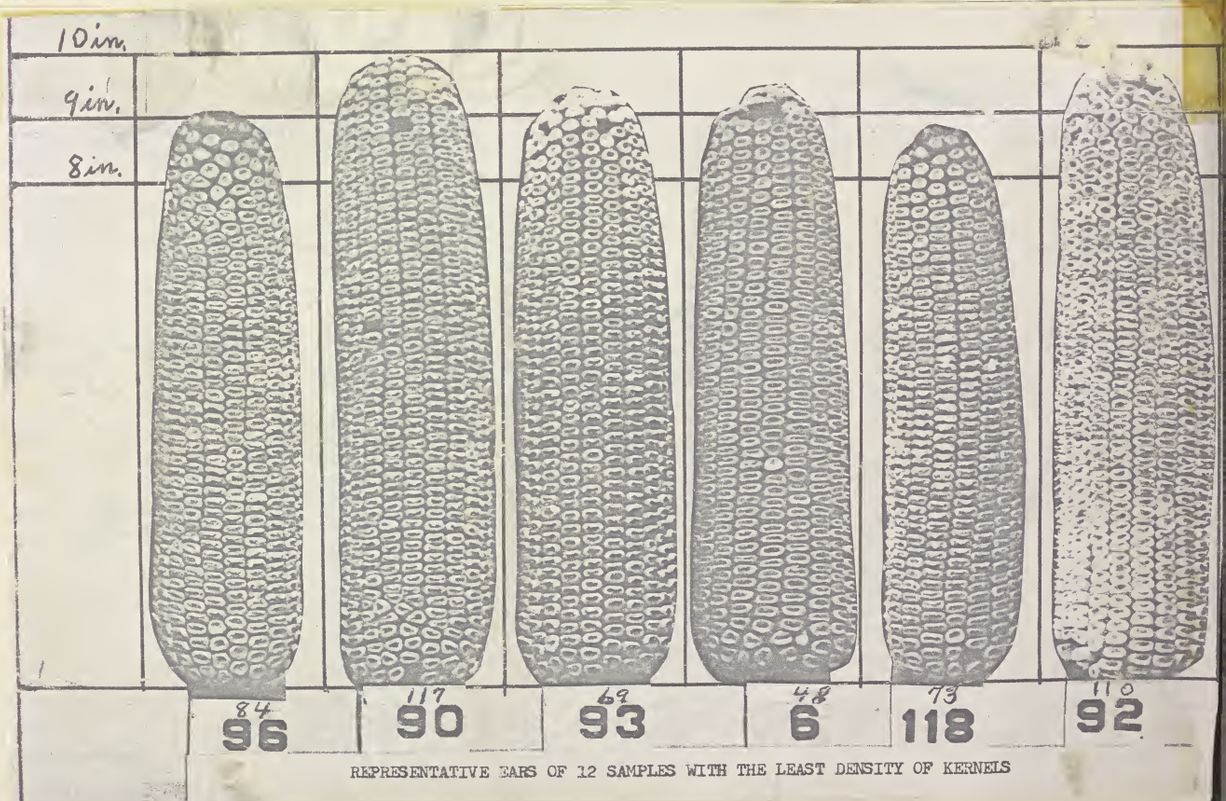


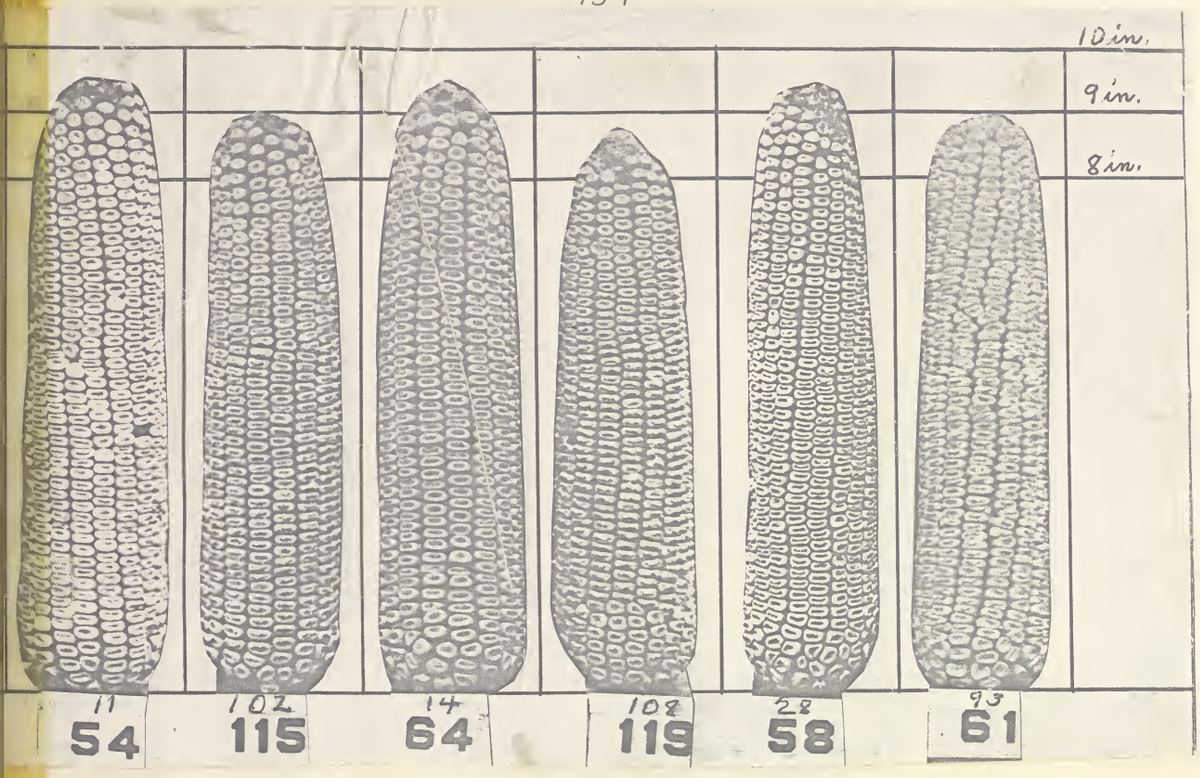
REPRESENTATIVE EARS OF 12 SAMPLES WITH THE GREATEST DENSITY OF KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN DENSITY OF KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH THE LEAST DENSITY OF KERNELS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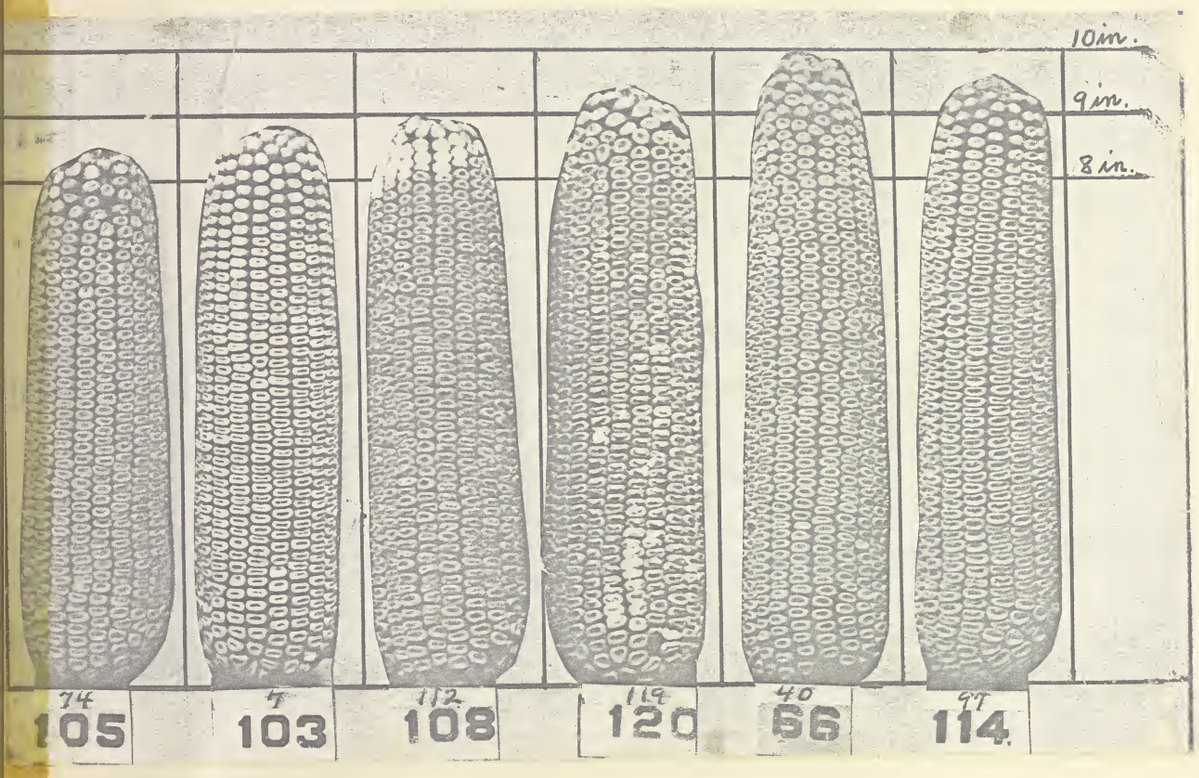
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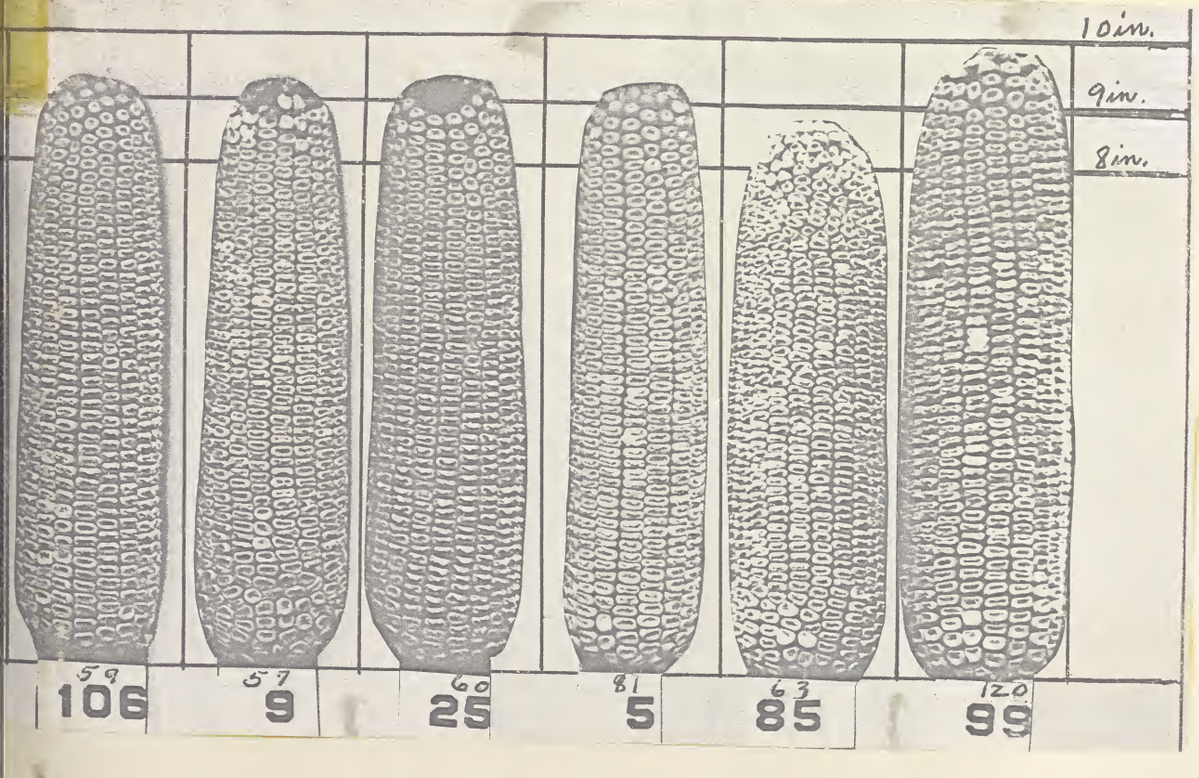
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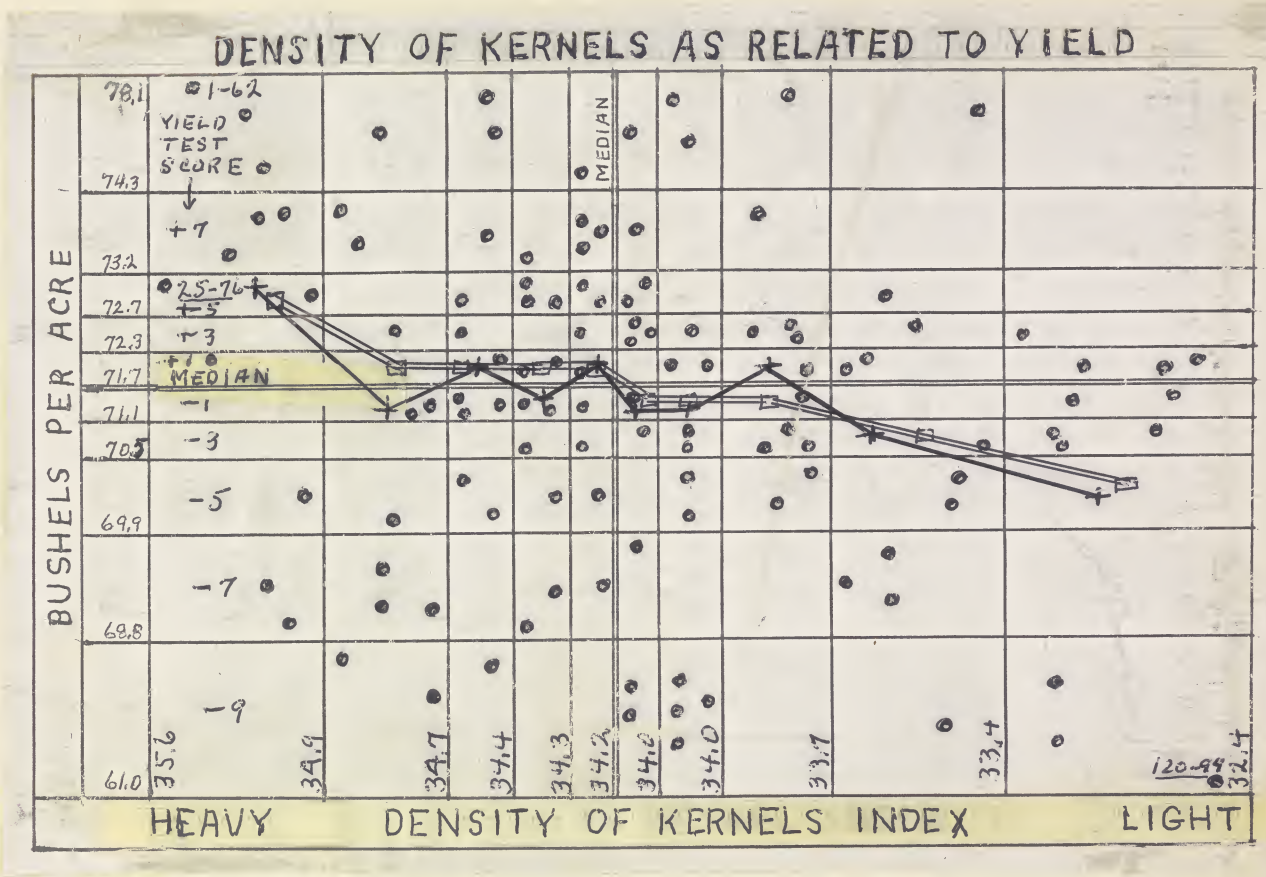


DENSITY OF KERNELS AS RELATED TO YIELD AND
TO EACH OF EIGHTEEN OTHER DESCRIPTIVE ITEMS

The density of kernel, which is similar to weight per bushel, was determined each year for each sample of seed. The measure used in this study was the weight in metric grams of a sample of kernels that was contained in a small cup filled level full. Each time the cup was filled the kernels were settled by tapping the cup on the table a given number of times. The cup contained about 100 average size kernels.

The density of kernels varied from a high of 35.6 for sample No. 25-76 which yielded 73.4 bushels per acre, to 32.4 for Sample No.120-99 which had the lowest yield of 61.0 bushels per acre. (The author has been more or less concerned all of the past 50 years, being a little fearful that he had made some error that gave sample No.120-99 a yield so much below any other sample. However he is now convinced that the records are correct. The careful student may well watch to see how this sample stands in relation to other descriptive items.)

The 12 samples having the highest density of kernels had an index of 35.2 and produced an average yield of 72.0 bushels per acre. The 12 samples with the lowest density index had an index of 33.0 and yielded 70.0 bushels per acre. See page 141.

Please notice that the high density decil group was especially higher in density and in yield than the second to eighth decil groups. Also that the 9th and 10th decil groups were relatively low in yield as compared with the 2nd to 8th decil groups.

This study indicates that an especially high weight per bushel was a good way to help select seed and that low test weights were equally undesirable. Even so there were a few high yielding samples with low density and and others with high weights per bushel and low yields. This supports the idea that the field test was the only sure way to select high yielding seed of good quality.

Density of kernels

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored 1	2	3	4	Decil groups 5	6	7	8	9	Poorest or least favored 10	See pages of Vol. II
Items that required field or laboratory tests														
Bushels per acre	73.0	71.2	70.0	High 78.1		●		Median 71.7	▲		○		Low 61.0	122–125
Percent of good corn	90.1	89.3	88.9	High 92.7				●		▲	○		Low 85.8	126–129
Percent of moisture	20.5	21.3	22.2	Low 17.9		●		▲ 21.4			○		High 24.9	130–133
Percent of shelled corn	86.4	85.8	86.0	High ● 87.3			○	▲ 85.8					Low 84.5	134–137
Density of shelled corn	35.2	34.2	33.0	● Heavy 35.6				▲ 34.2					Light 32.4 ○	138–141
Germination index	87.8	81.6	84.4	High 93.8				● 87.1			○	▲	Low 64.5	142–145
Disease index	77.8	68.4	69.8	Little 90.2			●	75.7			○	▲	Much 58.3	146–149
Weight of ears	12.32	12.53	13.79	Heavy 15.07	○			12.75		▲	●		Light 10.35	150–153
Items observed by oldtime corn judges														
Density of ears	40.37	39.53	38.75	Heavy 42.03	●			Median 39.54	▲			○	Light 37.58	154–157
Kernel development	64.7	54.1	54.0	Good 78.6	●			56.4		▲	○		Poor 38.3	158–161
Indentation index	34.3	45.4	66.0	Smooth 16.5	●			44.7	▲				Rough ○ 87.3	162–165
Length of kernels	13.06	13.35	14.31	Long 15.72 ○				13.41	▲			●	Short 12.47	166–169
Width of kernels	7.89	7.95	8.05	Wide 9.01			●	▲ 7.92					Narrow 7.12	170–173
Thickness of kernels	4.18	4.15	4.18	Thick 4.42				● 4.21	○		▲		Thin 3.89	174–177
Length of ears	8.81	8.79	9.10	Long 9.67				○ 8.96		● ▲			Short 8.25	178–181
Diameter of ears	2.097	2.142	2.230	Small 2.012		●		▲ 2.137				○	Large 2.304	182–185
No. of rows of kernels	17.5	18.4	18.8	Small 14.9		●		▲ 18.3		○			Large 2.09	186–189
Color of shank index	69.9	68.3	69.0	White 86.7				● ▲ ○ 67.7					Dark 36.7	190–193
Condition of shank index	45.1	36.7	38.9	Smooth 58.3		●		○ 38.4	▲				Rough 18.3	194–197
Variation index	6.9	6.7	6.4	Uniform 3.0		● ▲ ○		7.0					Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

PERCENT OF GERMINATION

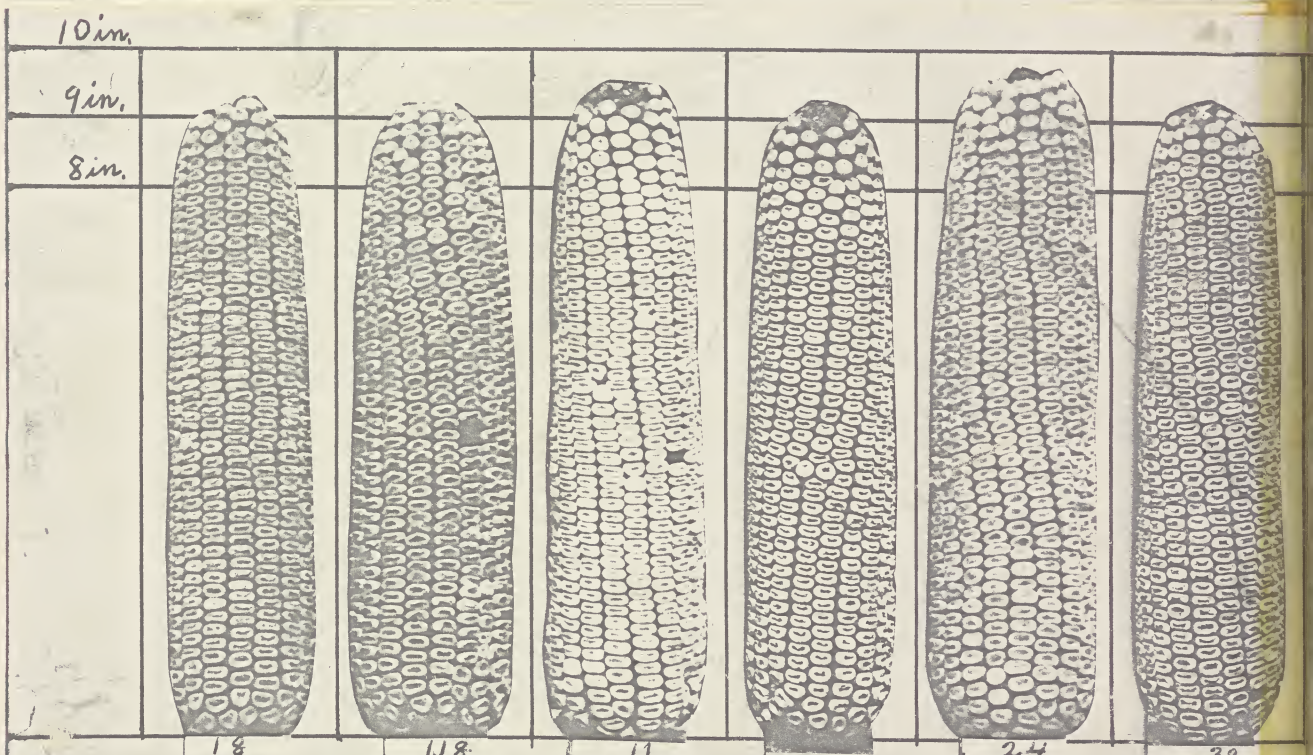
as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 144-145)

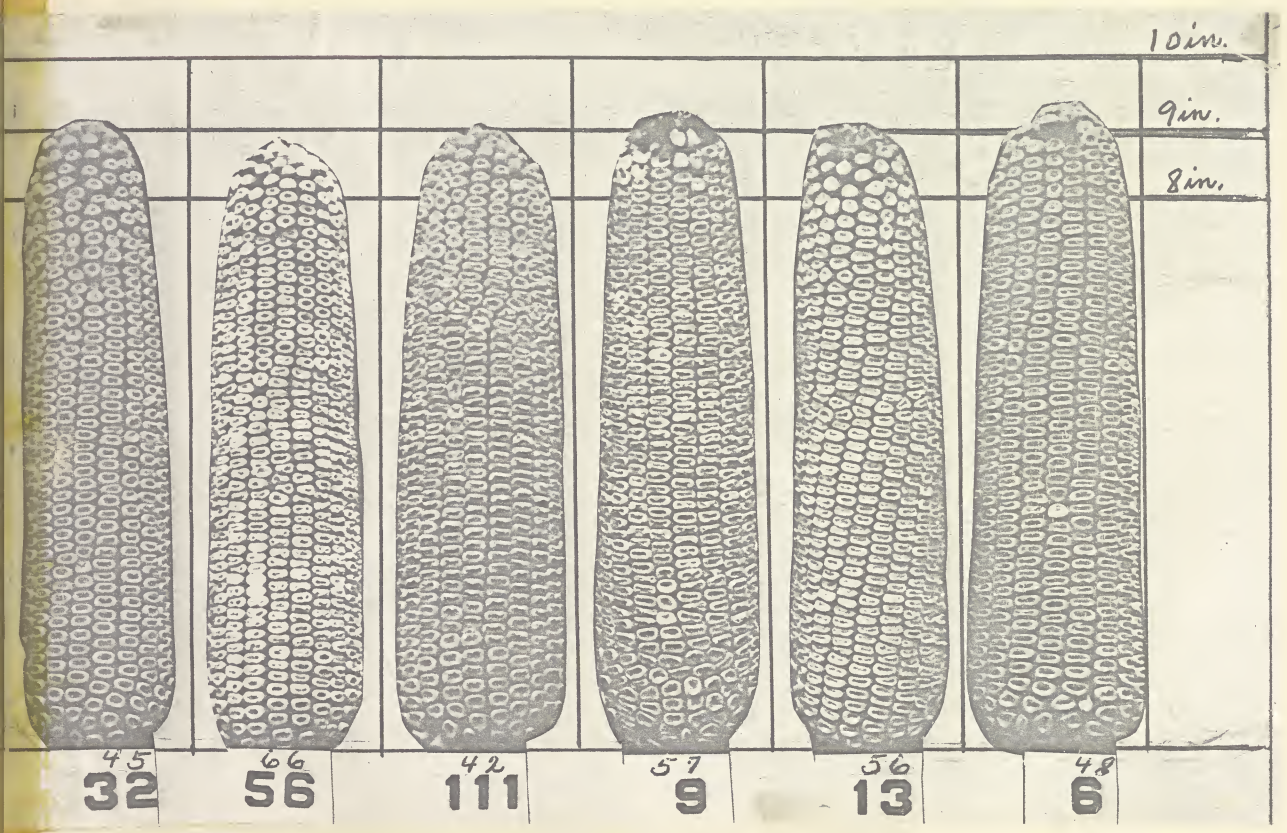
79 | 110 | 4 | 33 | 107 | 28

REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN GERMINATION



18 | 118 | 11 | 37 | 24 | 32
46 | 74 | 54 | 42 | 51 | 89

REPRESENTATIVE EARS OF 12 SAMPLES WITH POOREST GERMINATION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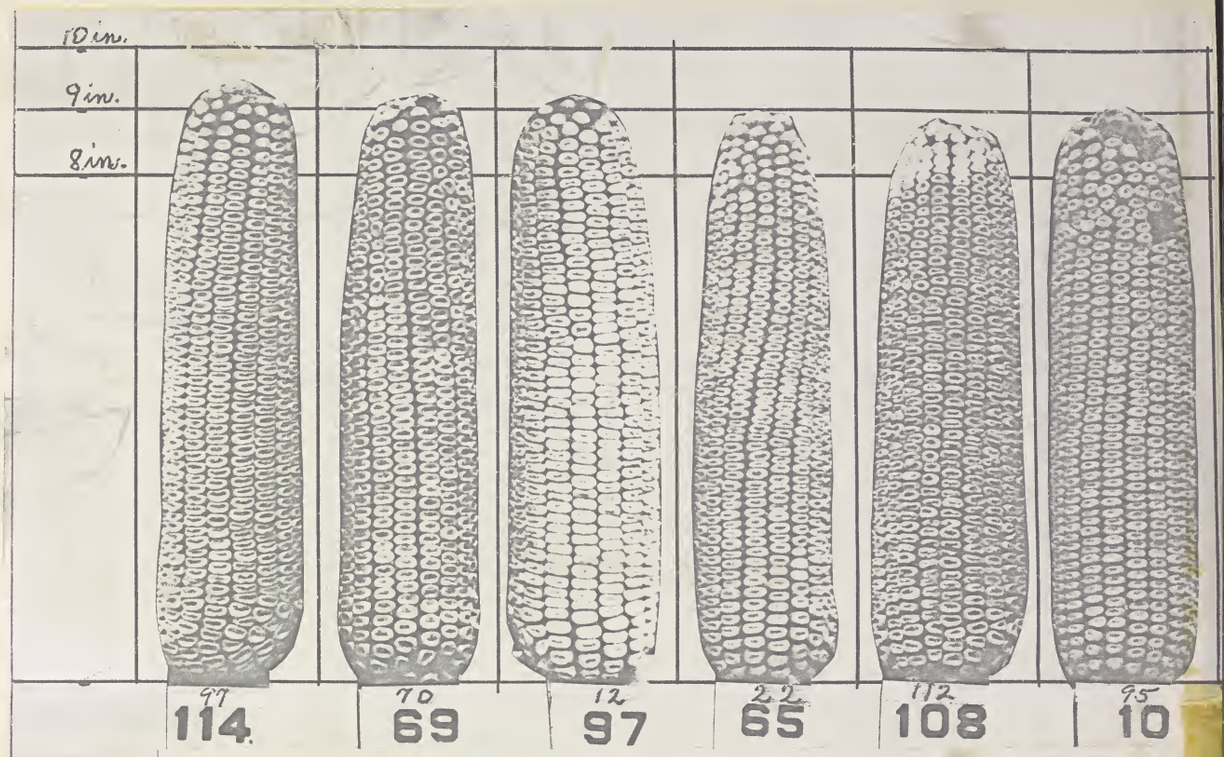
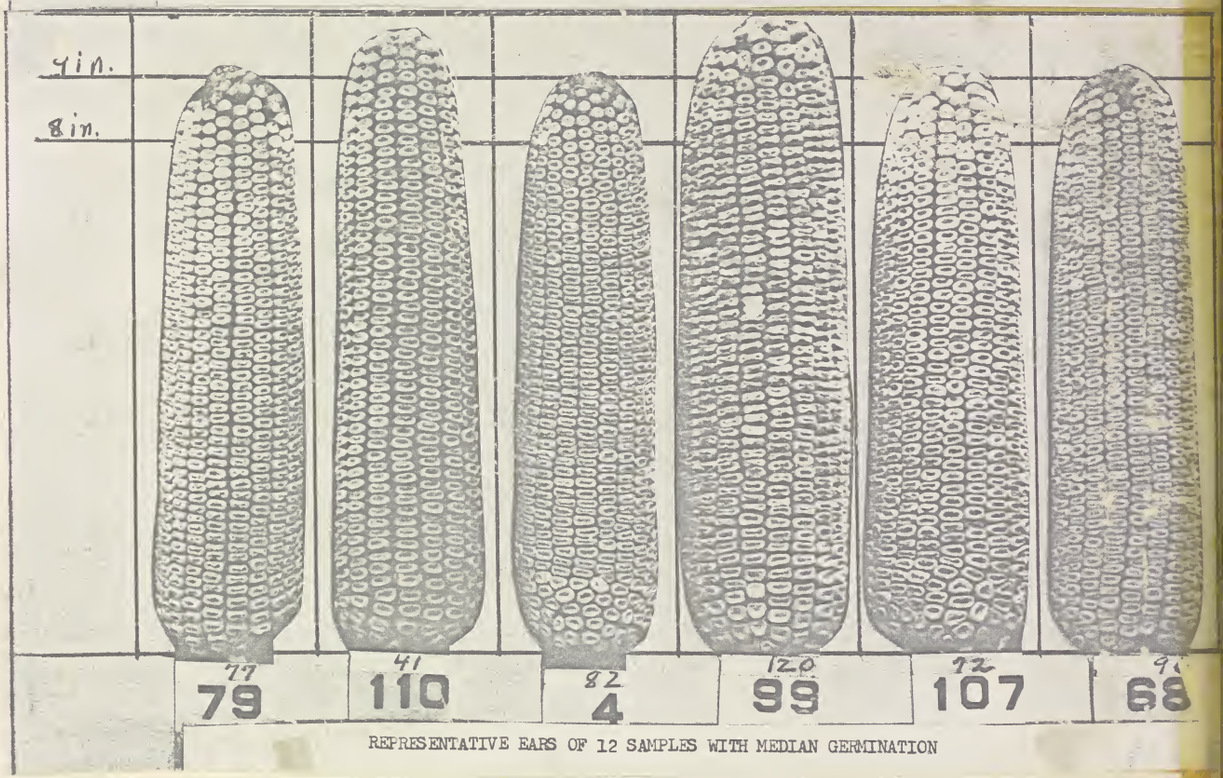
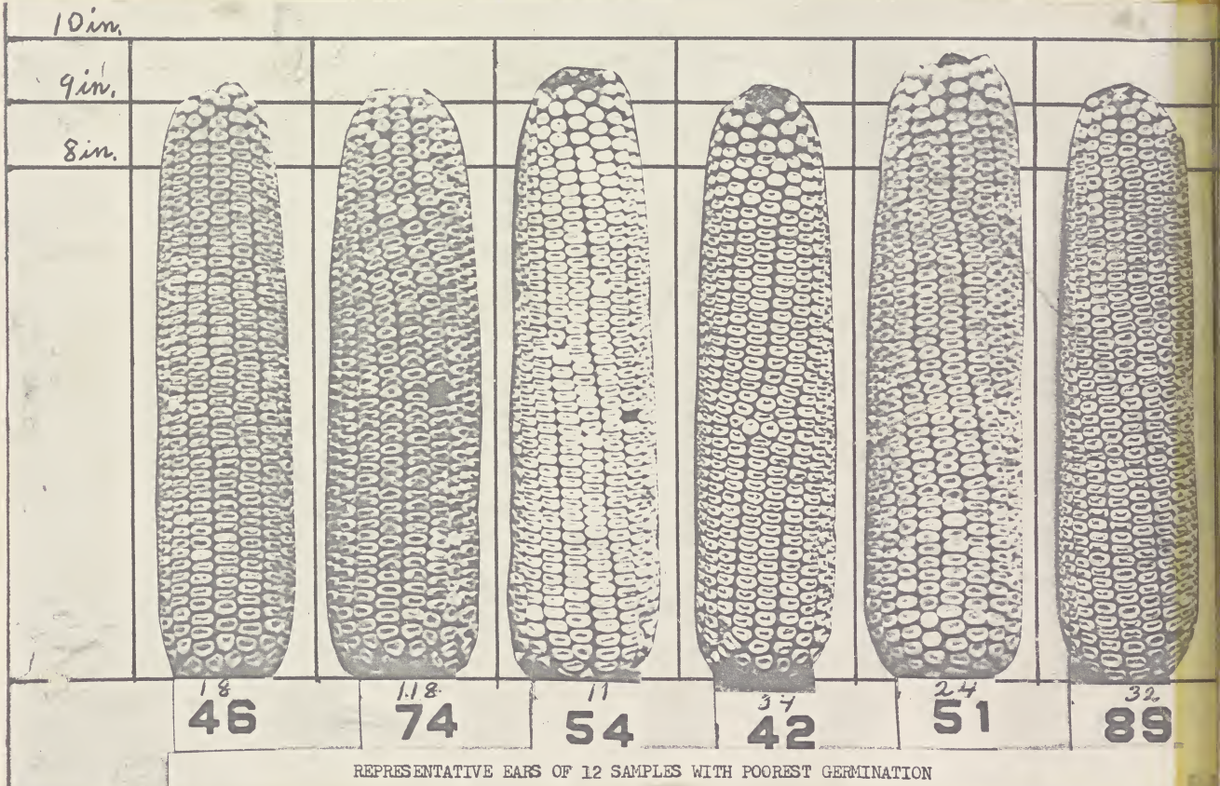


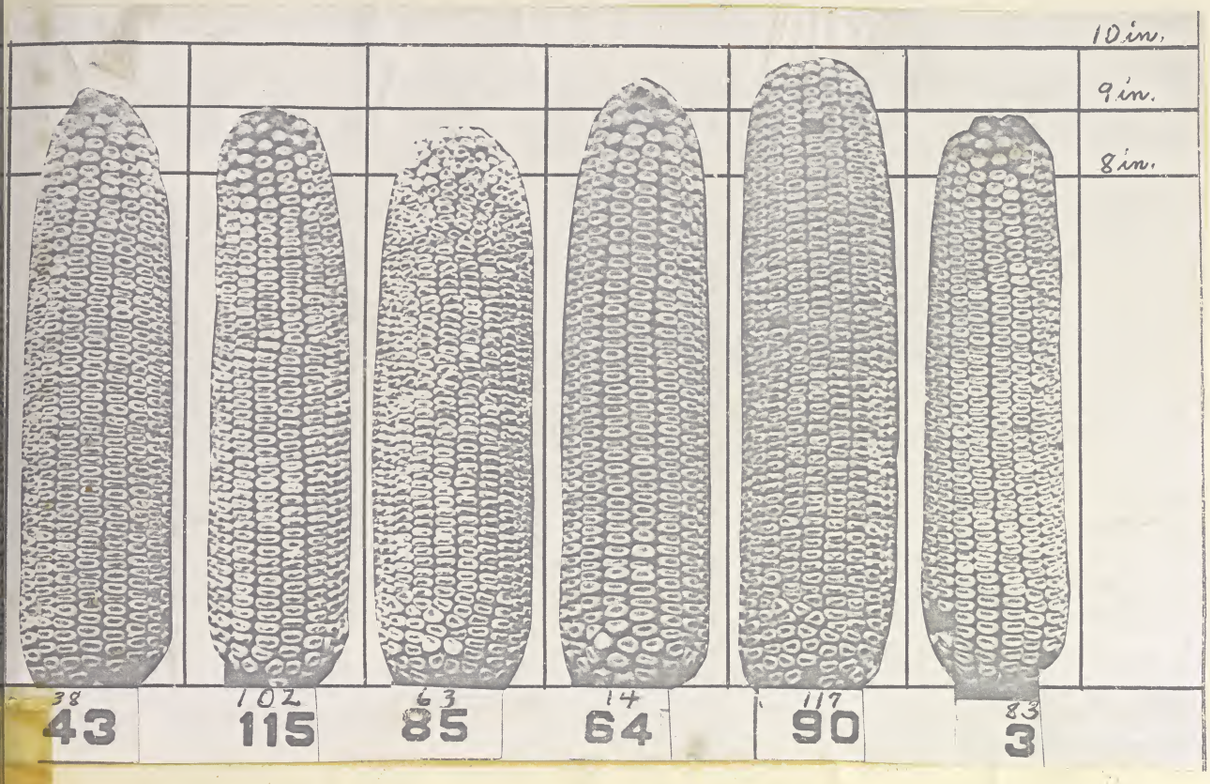
REPRESENTATIVE EARS OF 12 SAMPLES WITH BEST GERMINATION



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN GERMINATION



REPRESENTATIVE EARS OF 12 SAMPLES WITH POOREST GERMINATION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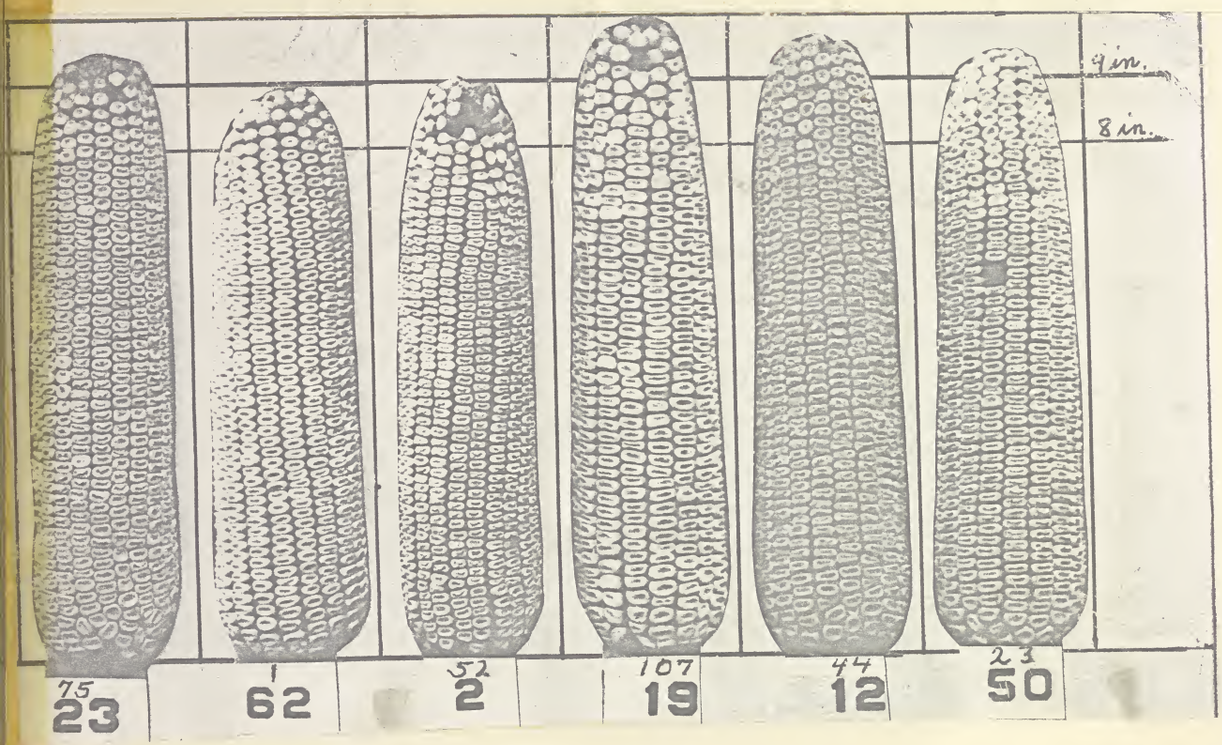
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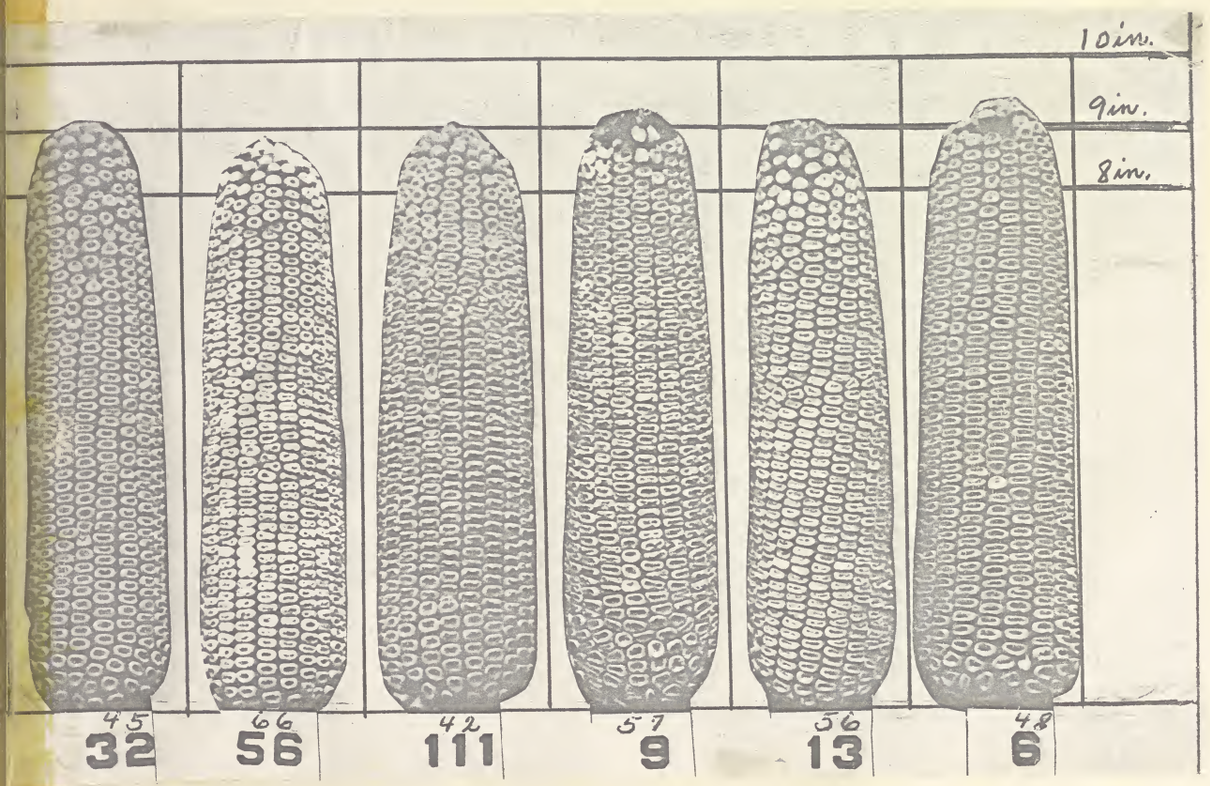
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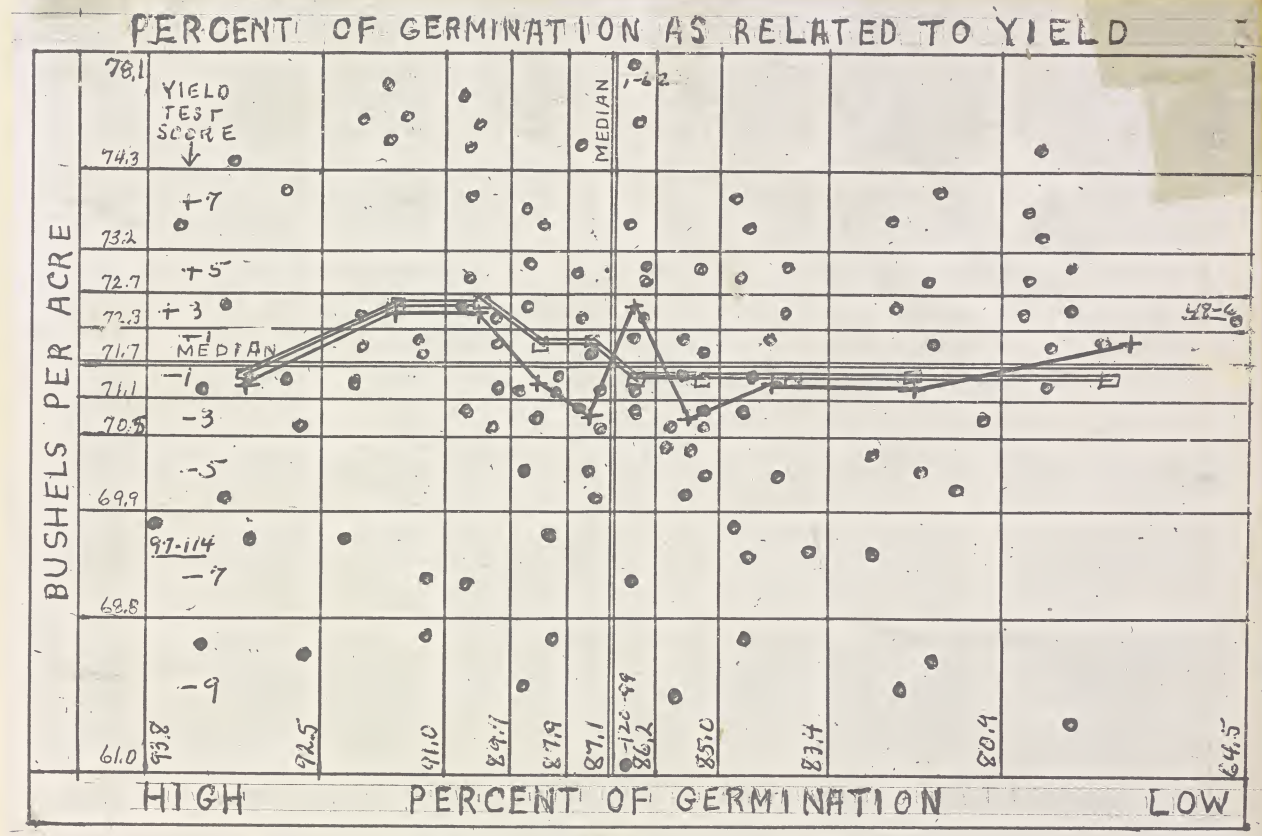


PERCENT OF GERMINATION AS RELATED TO YIELD AND
TO EACH OF EIGHTEEN OTHER DESCRIPTIVE ITEMS

A germination and disease test of 70 ears of each sample of seed was made each year. A record for each ear was made showing that the germination and vigor of each was good, fair or poor. The germination index was calculated by adding to the number of ears showing good germination one-half the number showing fair germination, dividing the sum by the number of ears tested and multiplying the product by 100. This gave a germination index of 100 to a sample all of whose ears showed good germination and an index of 0 to a sample all of whose ears were poor in germination.

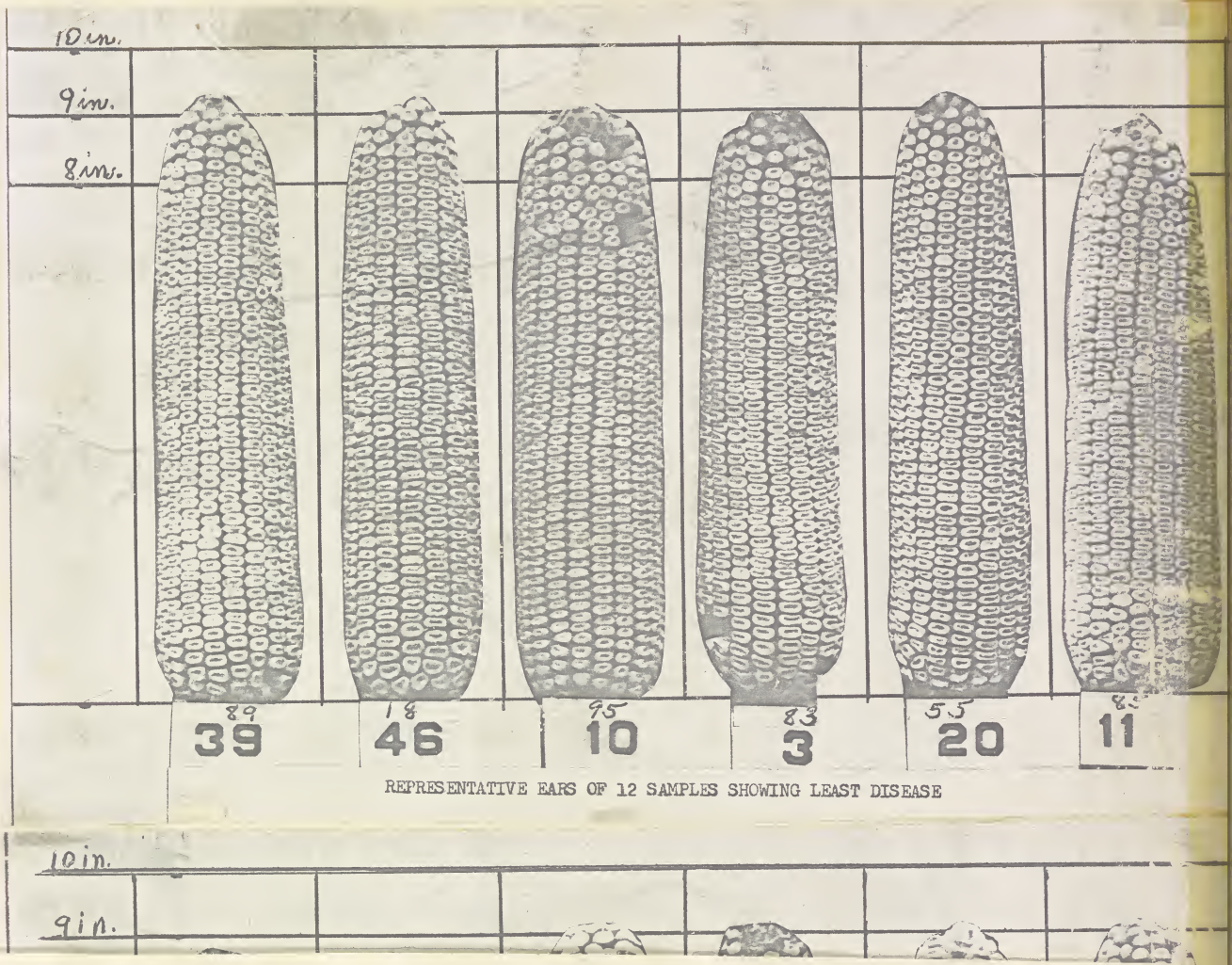
Since the planted sample of each lot of seed was all good in germination, the germination of all ears brought in for the test had little effect on the yield of the planted sample. A most important cause of low yields had been removed. See the charts above and on the opposite page.

Germination index

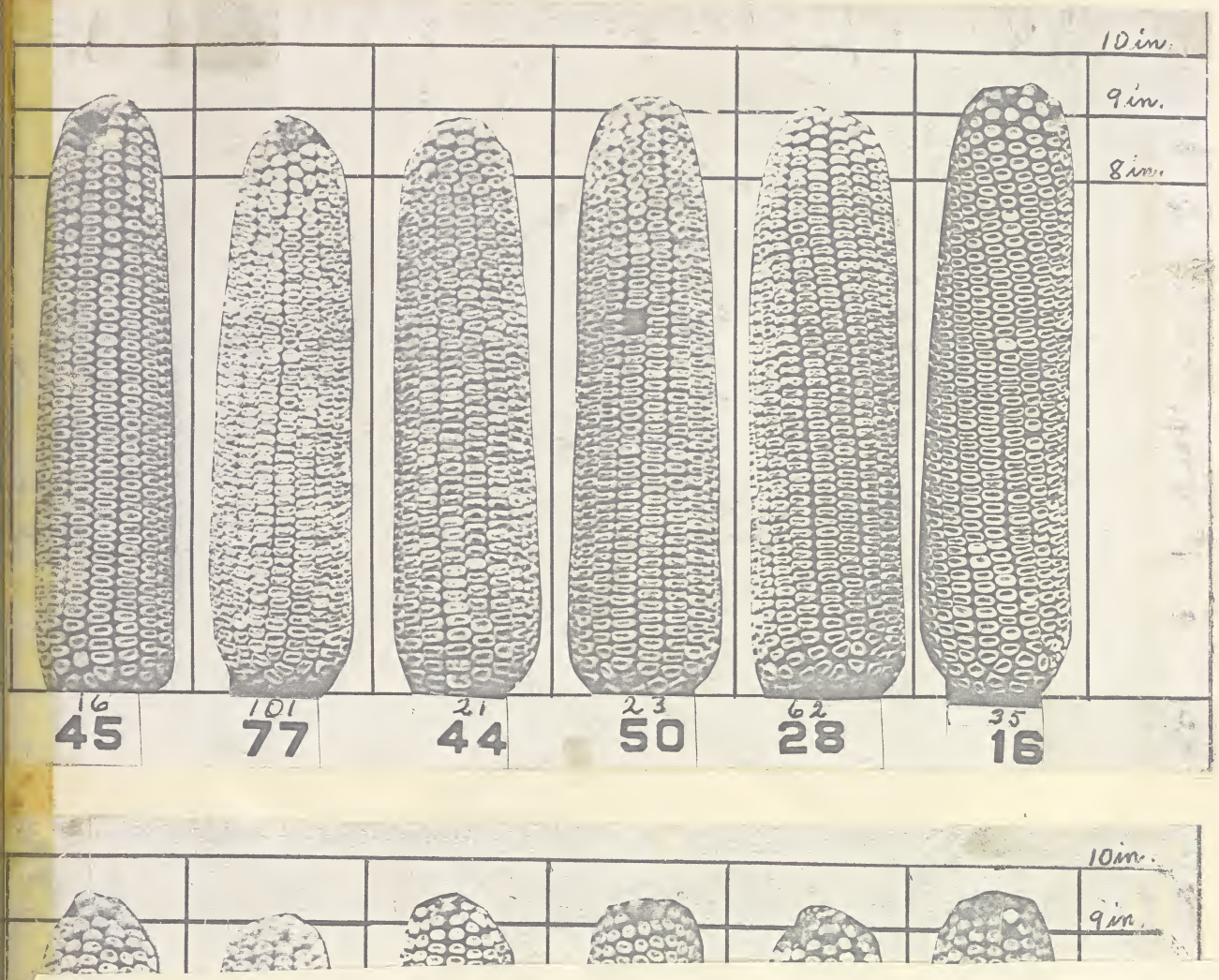
as related to
BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol.II
Items that required field or laboratory tests																
Bushels per acre	71.1	71.0	72.2	High 78.1					○ 71.7	Median ●	▲				Low 61.0	122-125
Percent of good corn	90.4	89.4	90.2	High 92.7				● ○	89.8		▲				Low 85.8	126-129
Percent of moisture	21.1	22.3	21.9	Low 17.9					21.4		● ○	▲			High 24.9	130-133
Percent of shelled corn	85.7	85.6	85.9	High 87.3				○	85.8	● ▲					Low 84.5	134-137
Density of shelled corn	34.1	34.2	34.2	Heavy 35.6					▲ ○ 34.2	●					Light 32.4	138-141
Germination index	93.1	86.9	77.8	● High 93.8						▲ 87.1					Low 64.5 ○	142-145
Disease index	75.6	77.4	72.1	Little 90.2				▲	75.7	●		○			Much 58.3	146-149
Weight of ears	12.72	13.00	13.10	Heavy 15.07				▲ ○	12.75	●					Light 10.35	150-153
Items observed by oldtime corn judges																
Density of ears	39.72	39.50	39.91	Heavy 42.03				○	● 39.54	▲					Light 37.58	154-157
Kernel development	56.6	59.3	59.6	Good 78.6				▲ ○	● 56.4						Poor 38.3	158-161
Indentation index	47.2	42.2	46.7	Smooth 16.5					▲ 44.7	● ○					Rough 87.3	162-165
Length of kernels	13.43	13.53	13.54	Long 15.72				▲ ○	● 13.41						Short 12.47	166-169
Width of kernels	7.83	7.93	8.03	Wide 9.01				○	▲ 7.92		●				Narrow 7.12	170-173
Thickness of kernels	4.15	4.24	4.22	Thick 4.42				▲	○ 4.21			●			Thin 3.89	174-177
Length of ears	8.88	9.02	9.02	Long 9.67					▲ ○ 8.96	●					Short 8.25	178-181
Diameter of ears	2.140	2.156	2.153	Small 2.012					2.137 ○	●	▲				Large 2.304	182-185
No. of rows of kernels	18.5	18.6	18.2	Small 14.9					○ 18.3	● ▲					Large 2.09	186-189
Color of shank index	65.7	68.7	66.9	White 86.7					▲ 67.7 ○	●					Dark 36.7	190-193
Condition of shank index	37.4	42.3	41.1	Smooth 58.3				▲	○ 38.4	●					Rough 18.3	194-197
Variation index	6.9	7.6	7.5	Uniform 3.0		●			7.0		▲ ○				Uneven 11.0	198-201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



REPRESENTATIVE EARS OF 12 SAMPLES SHOWING LEAST DISEASE

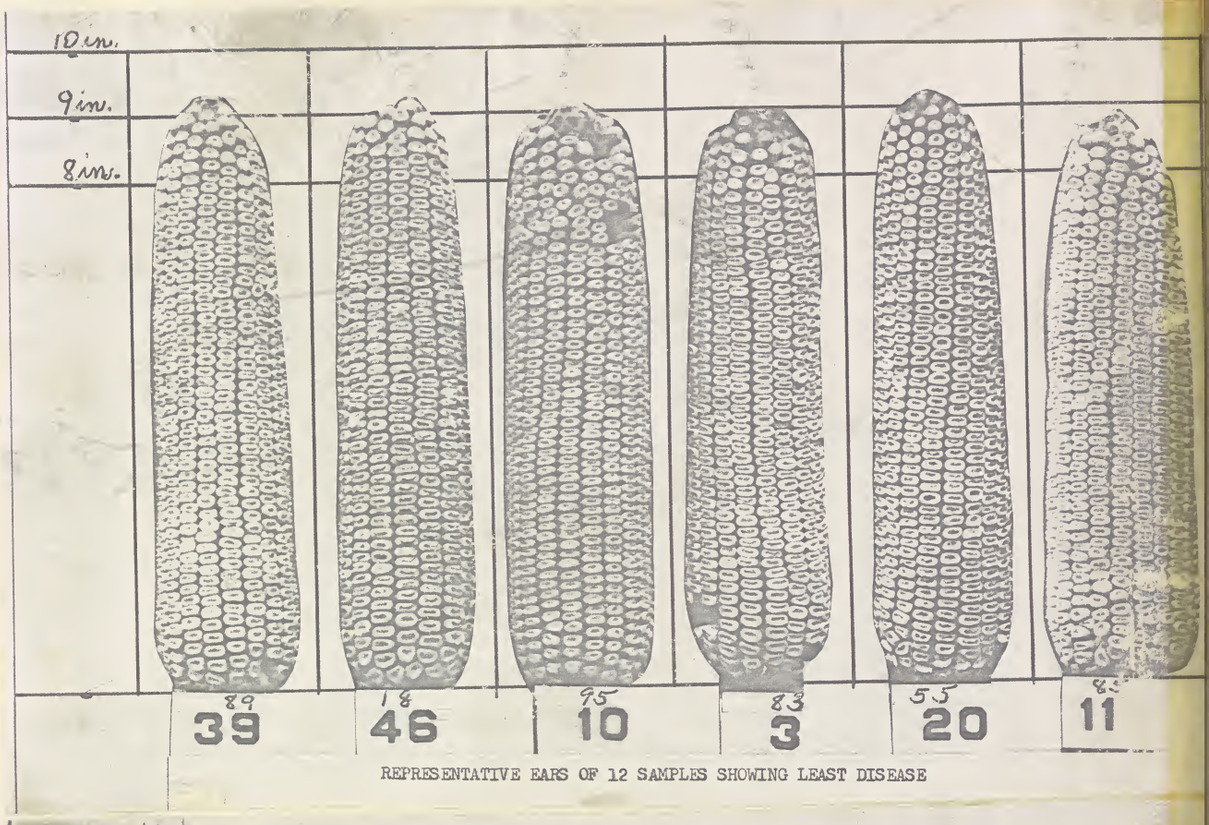


DISEASE INDEX

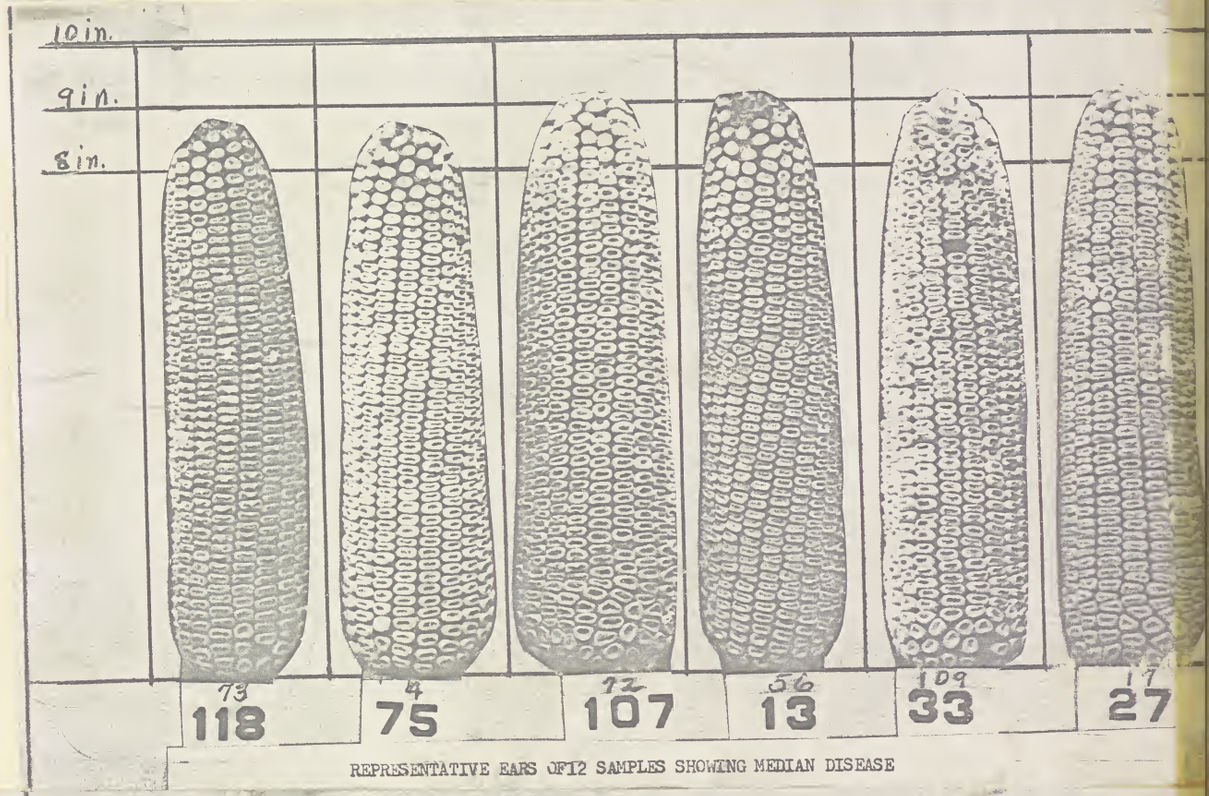
as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

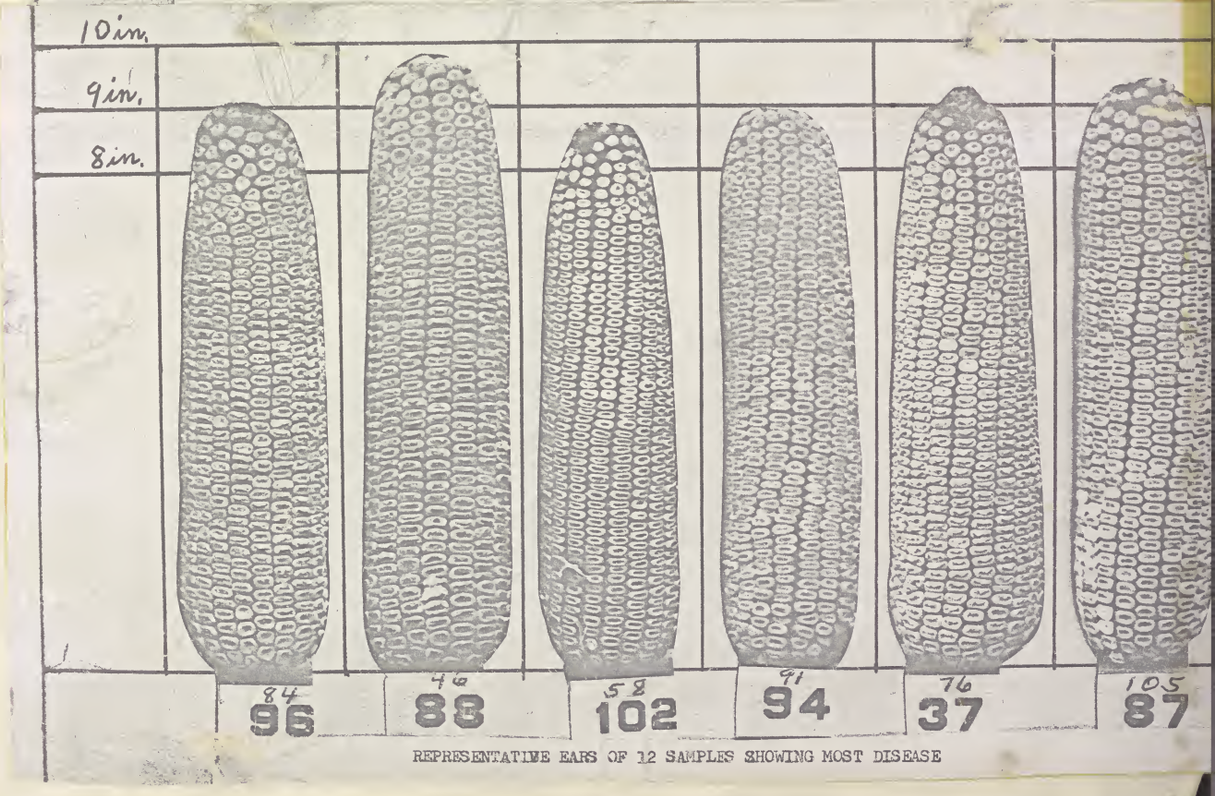
(See pages 148-149)



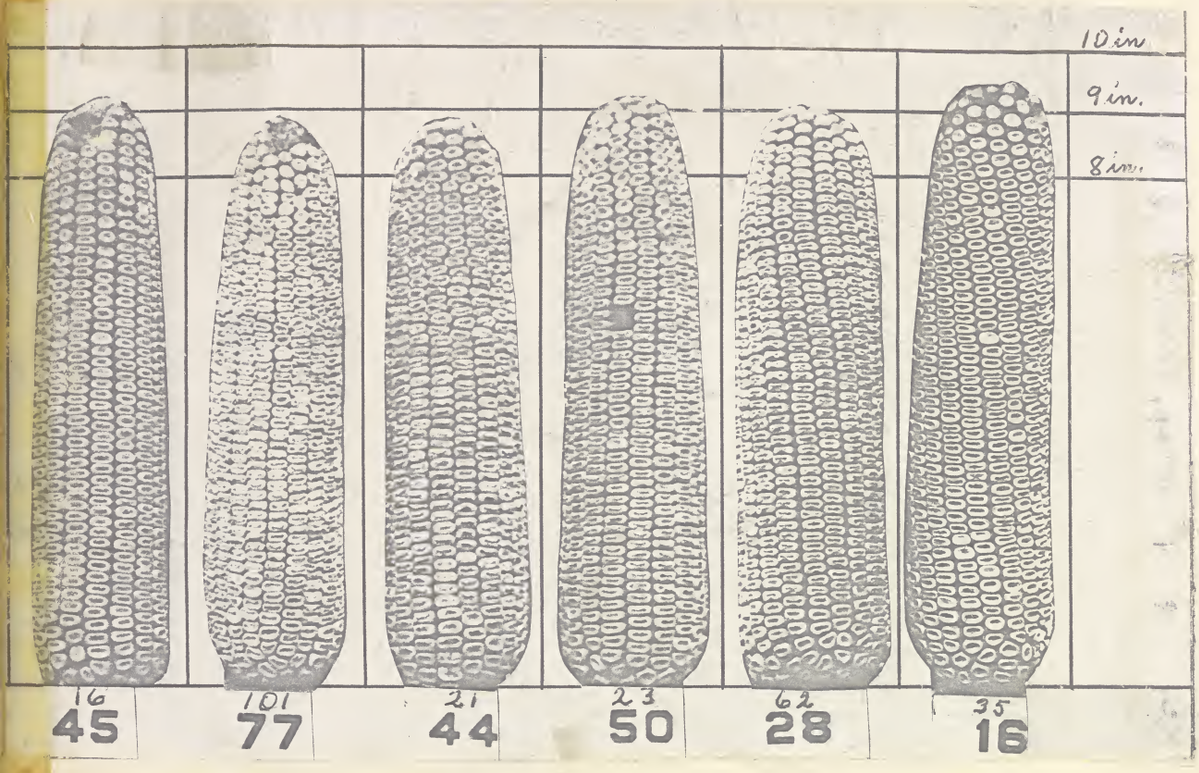
REPRESENTATIVE EARS OF 12 SAMPLES SHOWING LEAST DISEASE



REPRESENTATIVE EARS OF12 SAMPLES SHOWING MEDIAN DISEASE



REPRESENTATIVE EARS OF 12 SAMPLES SHOWING MOST DISEASE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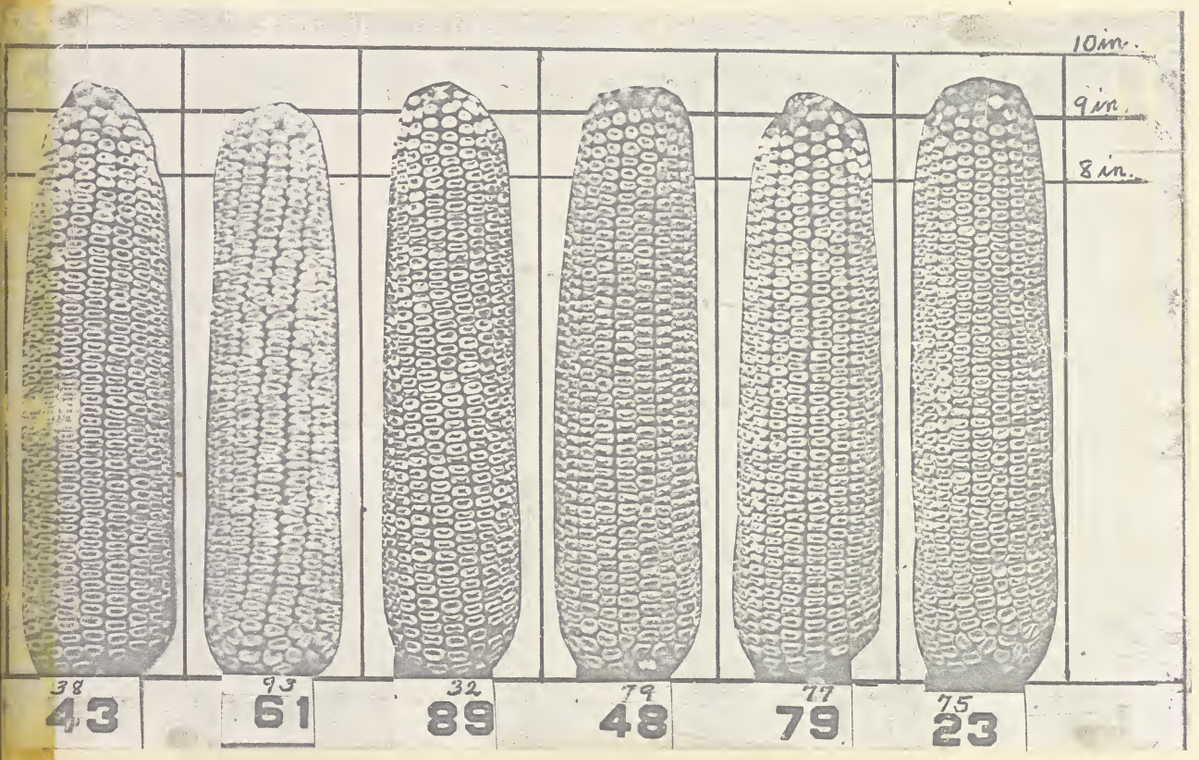
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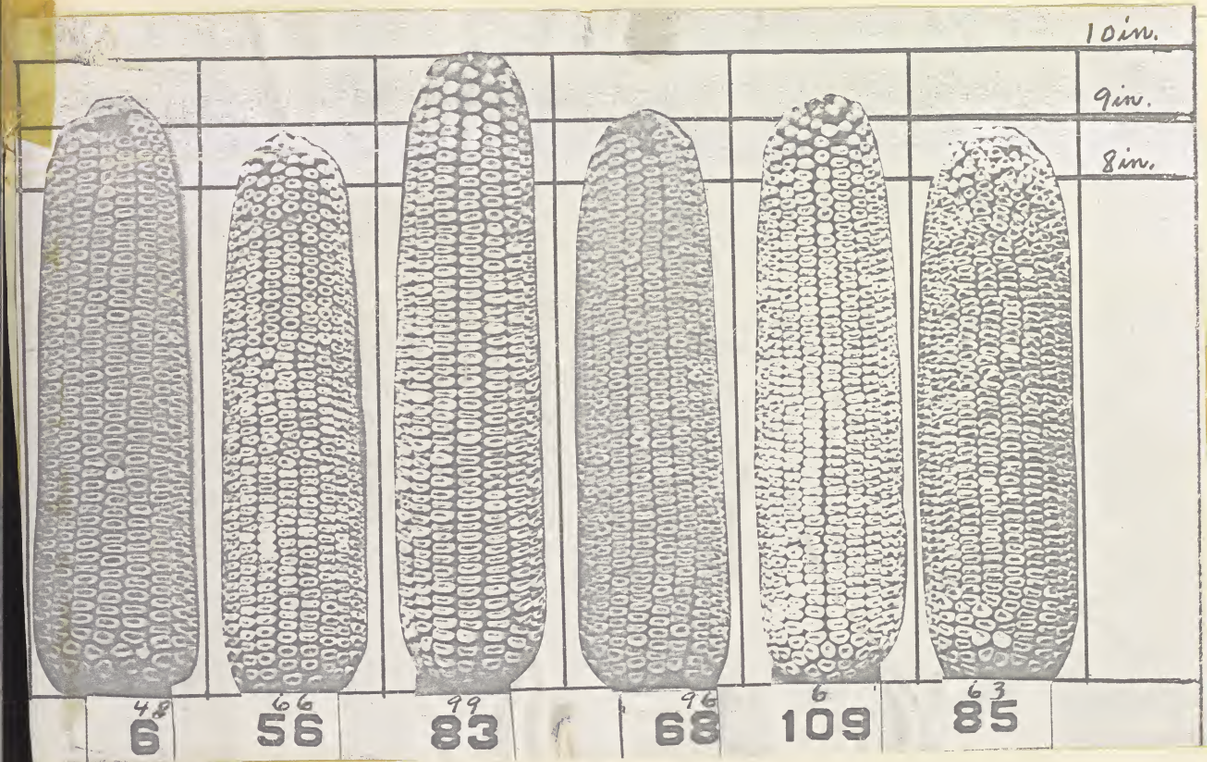
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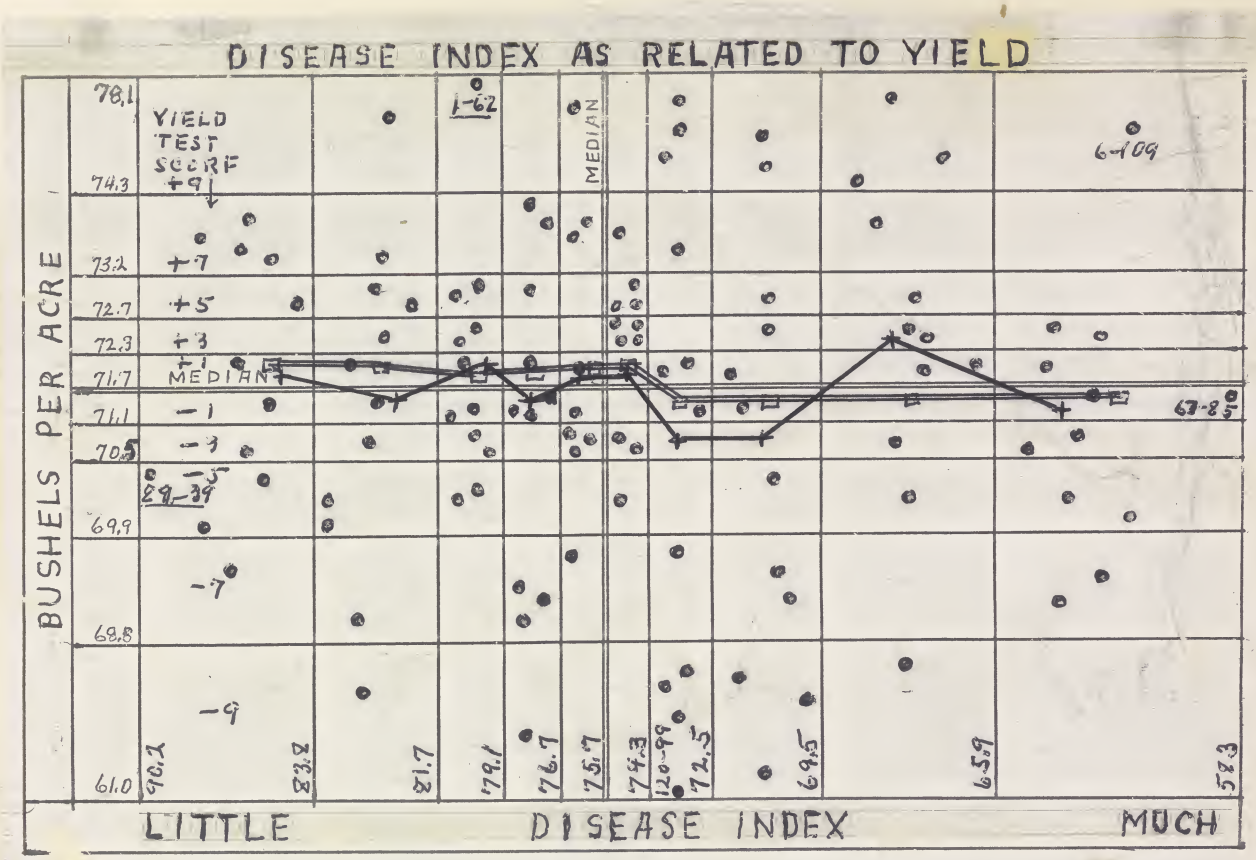


DISEASE INDEX AS RELATED TO YIELD AND TO
EACH OF EIGHTEEN OTHER DESCRIPTIVE ITEMS

A careful germination and disease test of six or ten kernels of each of the 70 ears of each farmer's sample was made each year. The record for each ear showed whether the seedlings were free from disease, showed some disease or were much diseased. The disease index was calculated by adding to the number of the seedlings that were free of disease the number that showed some disease, dividing the sum by the number of ears tested and multiplying by 100. This gave a disease index of 100 to a sample all of whode ears were free from disease and an index of 0 to a sample all of whose ears showed much disease.

Since the planted sample of each lot of seed was relatively free from disease, the diseased condition of all 70 ears brought in for the test had little effect on the yield of the planted sample. This important cause of low yields had been removed. See the charts above and on the opposite page.

However the relation of the diseased condition of the germinating seedlings to the color and condition of the shank attachments and their relations to yields may well be studied. See pages 149, 161, 193 and 197. Note there that freedom from seedling disease tended to be accompanied by smooth, white shanks, good kernel development and relatively high yields. Also that much seedling disease was accompanied by dark, rough shanks, relatively poor kernel development and lower yields. This appears to justify the requirement that a germination-disease test be made of all samples brought in to the Illinois Utility Corn Shows that began in 1920.

Disease index

as related to
BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples △	12 decil group 10 samples ○	Best or most favored 1	2	3	4	5	6	7	8	9	Poorest or least favored 10	See pages of Vol. II
Items that required field or laboratory tests														
Bushels per acre	71.8	71.8	71.2	High 78.1				● △	Median 71.7 ○				Low 61.0	122–125
Percent of good corn	90.6	89.9	89.9	High 92.7		●		△ ○	89.8				Low 85.8	126–129
Percent of moisture	21.6	20.9	21.7	Low 17.9			△		● 21.4 ○				High 24.9	130–133
Percent of shelled corn	85.8	85.7	85.8	High 87.3				● ○	85.8 △				Low 84.5	134–137
Density of shelled corn	34.2	34.4	34.0	Heavy 35.6		△		●	34.2 ○				Light 32.4	138–141
Germination index	88.2	85.9	84.7	High 93.8			●		87.1	△	○		Low 64.5	142–145
Disease index	85.9	75.7	63.6	● Little 90.2					△ 75.7				Much 58.3 ○	146–149
Weight of ears	12.63	12.42	12.90	Heavy 15.07					● 12.75 ○	△			Light 10.35	150–153
Items observed by oldtime corn judges														
Density of ears	40.03	39.52	39.23	Heavy 42.03		●			Median 39.54 △	○			Light 37.58	154–157
Kernel development	60.5	57.1	54.4	Good 78.6			●	△	56.4	○			Poor 38.3	158–161
Indentation index	44.3	47.8	49.5	Smooth 16.5				●	44.7 △	○			Rough 87.3	162–165
Length of kernels	13.40	13.38	13.52	Long 15.72			○		● △ 13.41				Short 12.47	166–169
Width of kernels	7.93	8.09	8.07	Wide 9.01		△ ○		●	7.92				Narrow 7.12	170–173
Thickness of kernels	4.21	4.18	4.20	Thick 4.42				●	4.21 △ ○				Thin 3.89	174–177
Length of ears	8.95	8.84	8.95	Long 9.67					● △ 8.96 ○				Short 8.25	178–181
Diameter of ears	2.118	2.127	2.163	Small 2.012			●	△	2.137	○			Large 2.364	182–185
No. of rows of kernels	18.4	17.7	18.3	Small 14.9		△		○	● 18.3				Large 2.09	186–189
Color of shank index	69.0	65.7	67.4	White 86.7				●	67.7 △ ○				Dark 36.7	190–193
Condition of shank index	42.0	38.3	35.6	Smooth 58.3			●		38.4 △	○			Rough 18.3	194–197
Variation index	6.8	7.2	7.2	Uniform 3.0		●			7.0	△ ○			Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

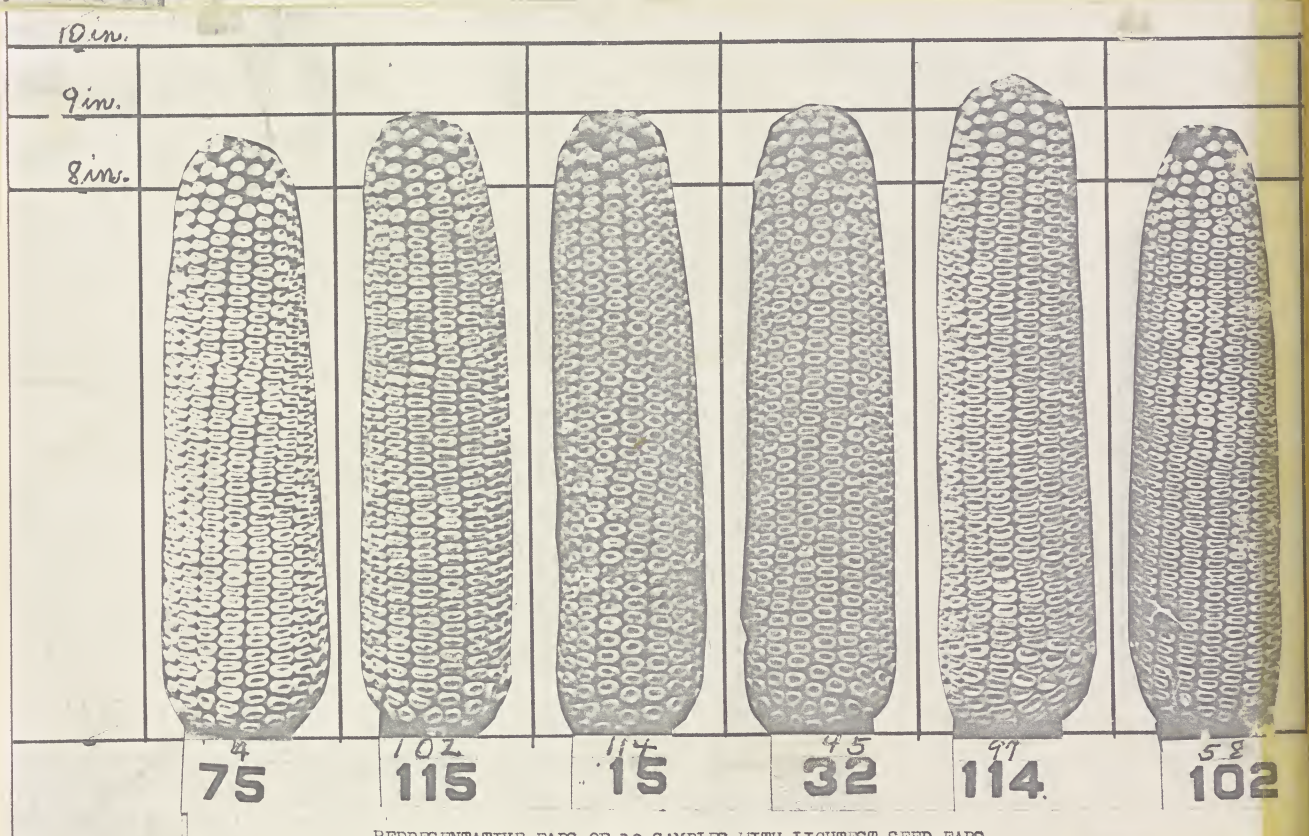
WEIGHT OF EAR

as related to

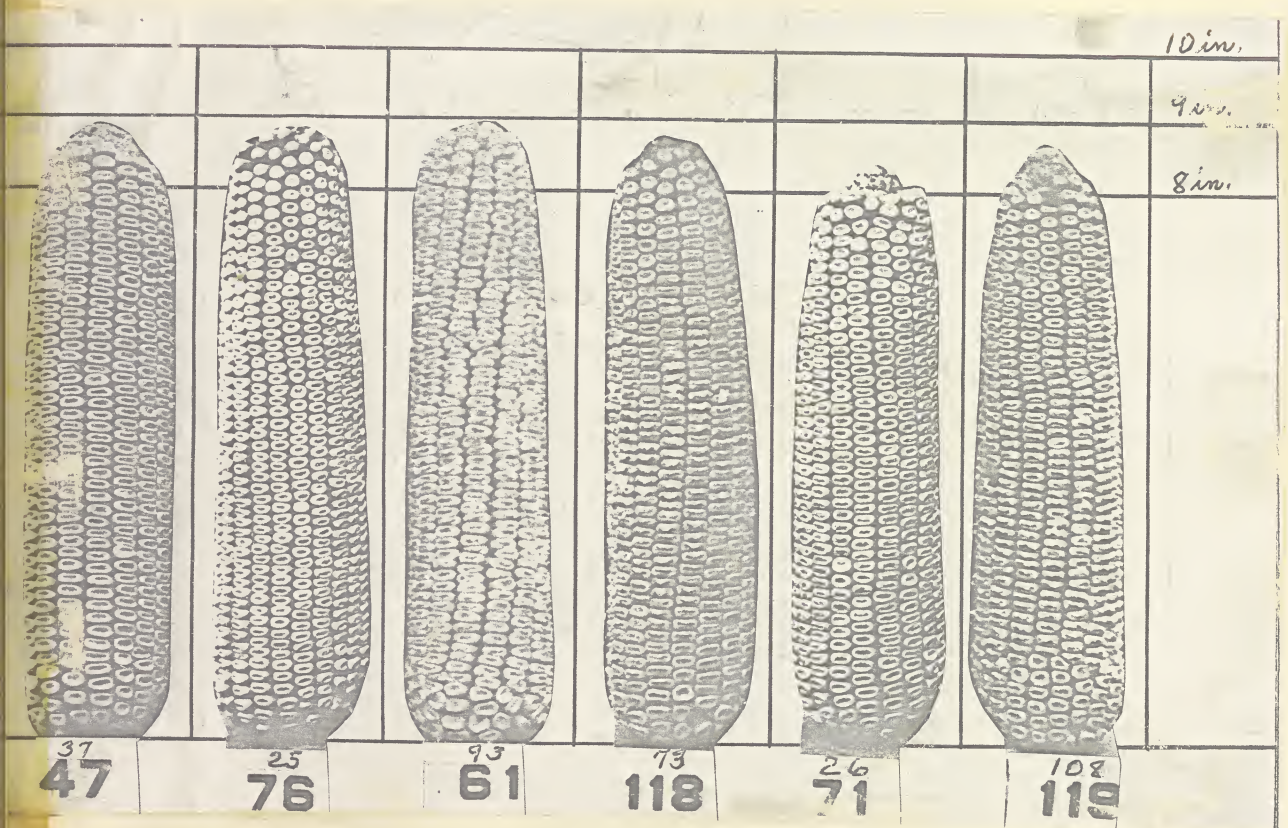
YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 152-153)

REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN WEIGHT OF SEED EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH LIGHTEST SEED EARS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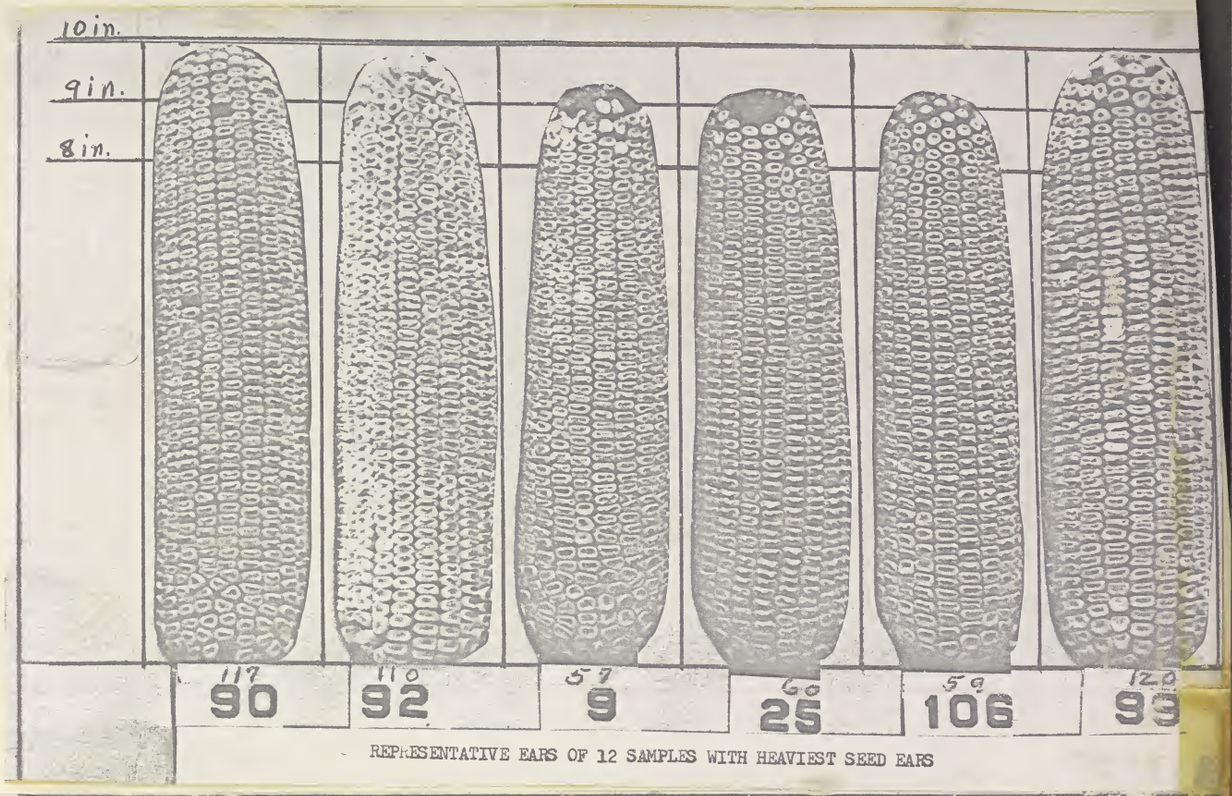
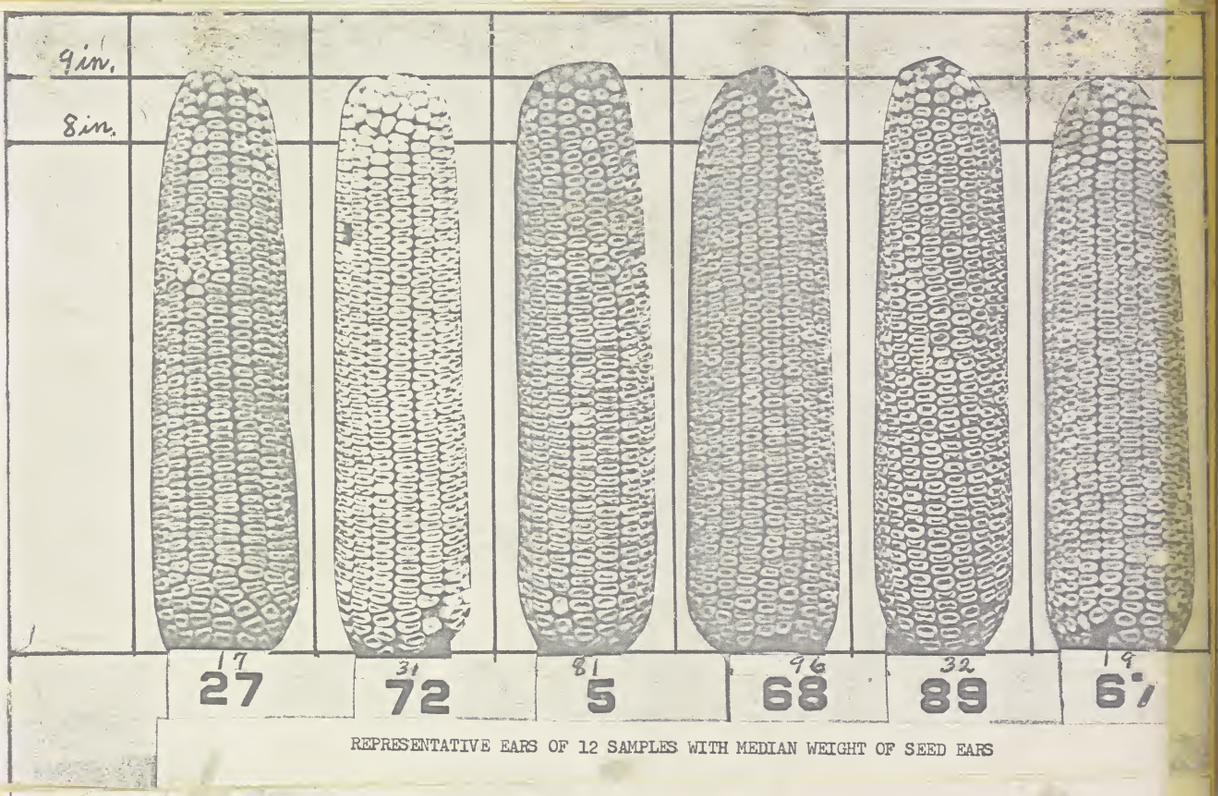
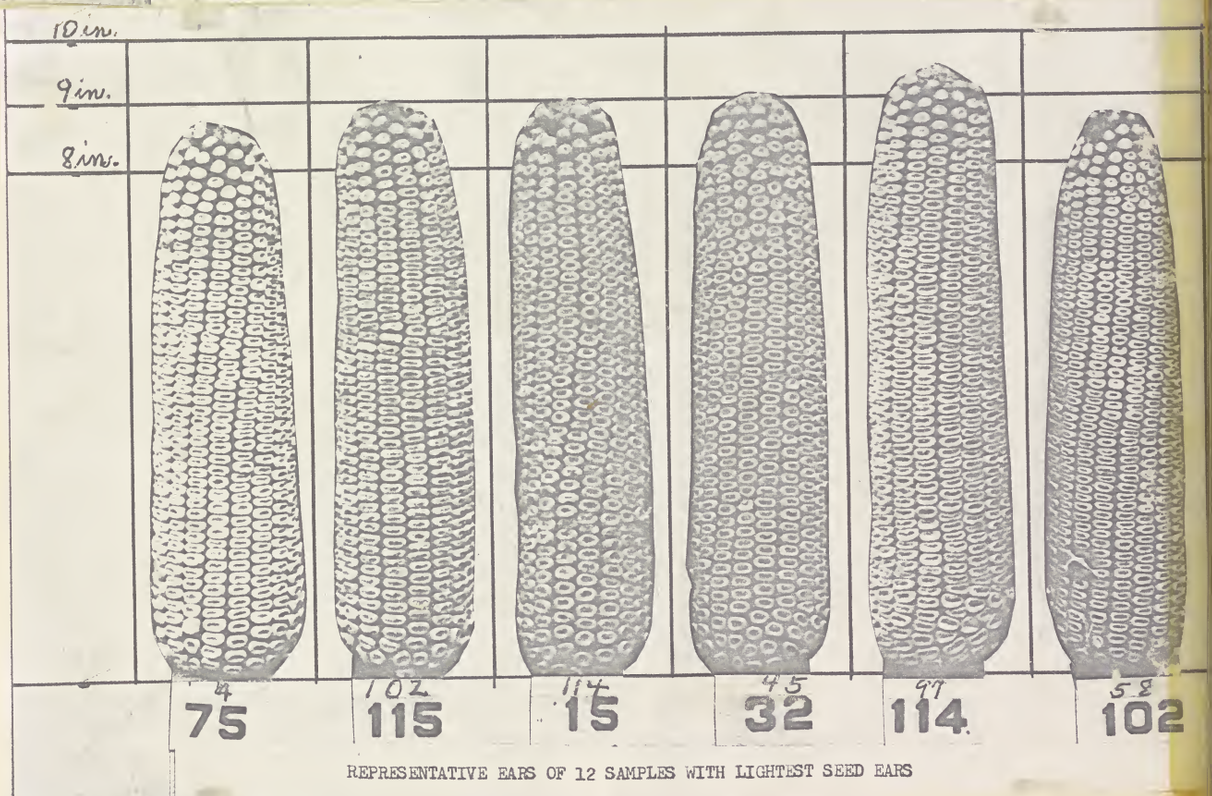


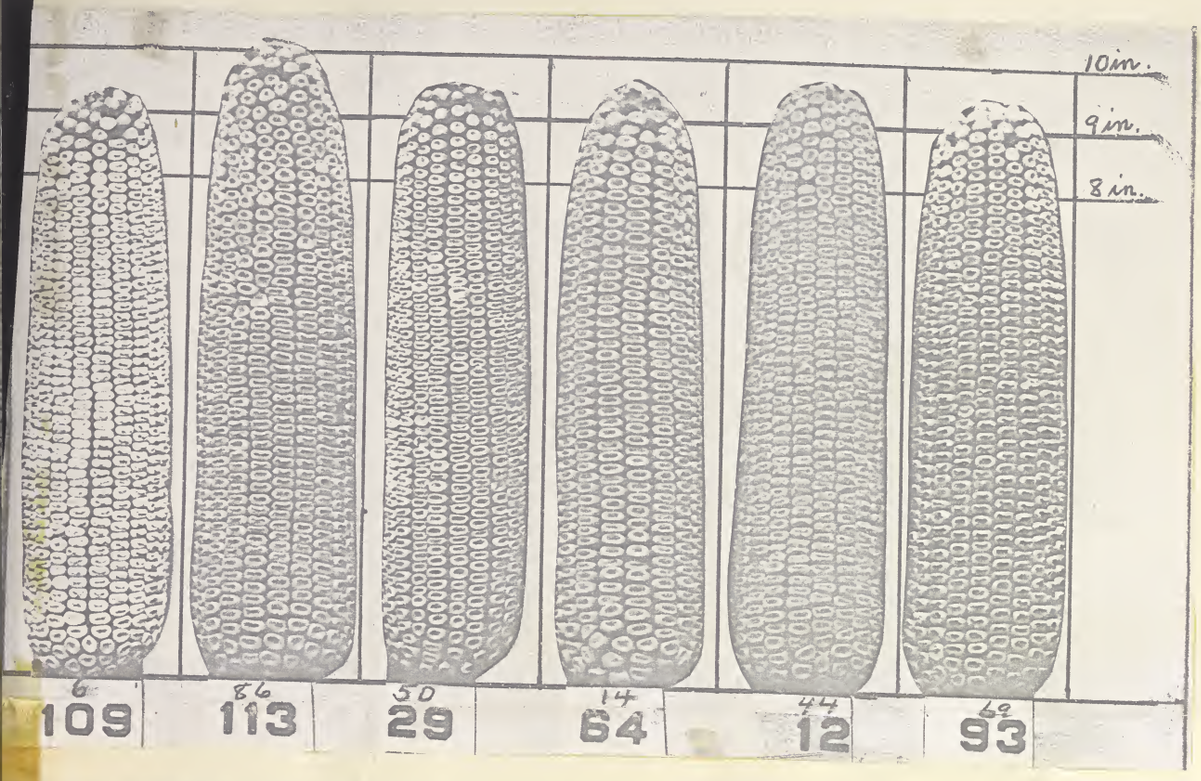
REPRESENTATIVE EARS OF 12 SAMPLES WITH HEAVIEST SEED EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN WEIGHT OF SEED EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH LIGHTEST SEED EARS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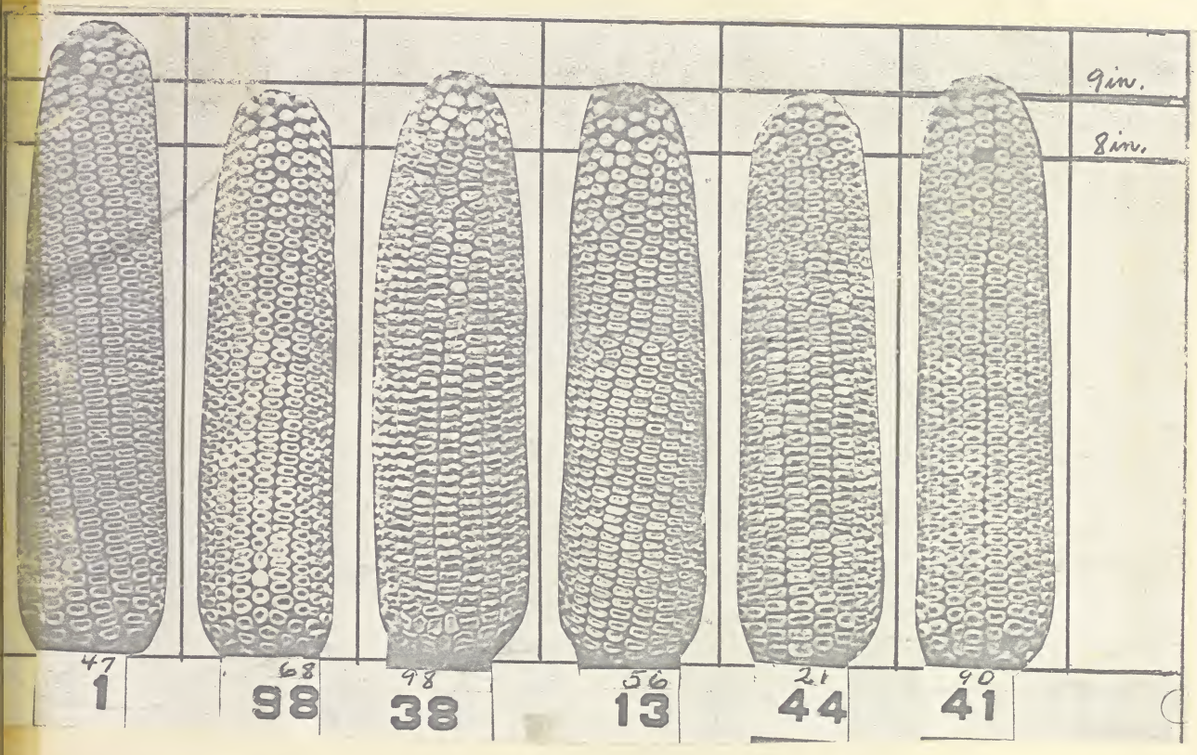
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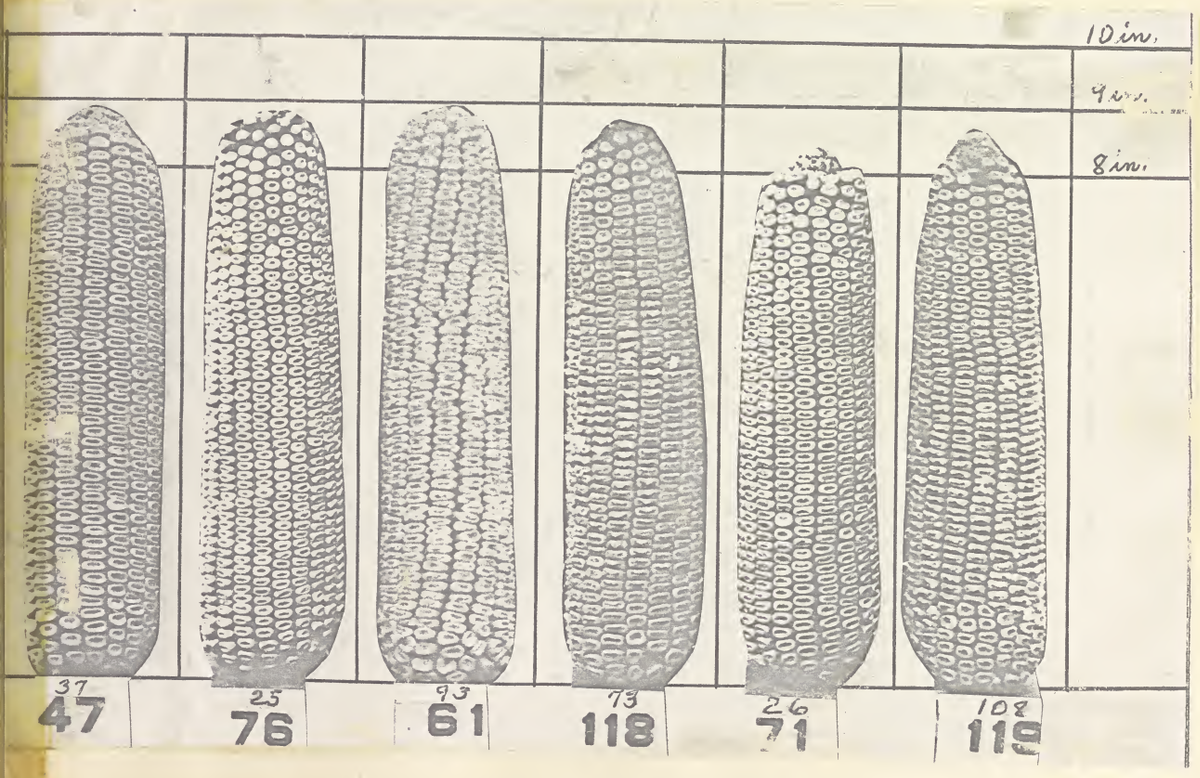
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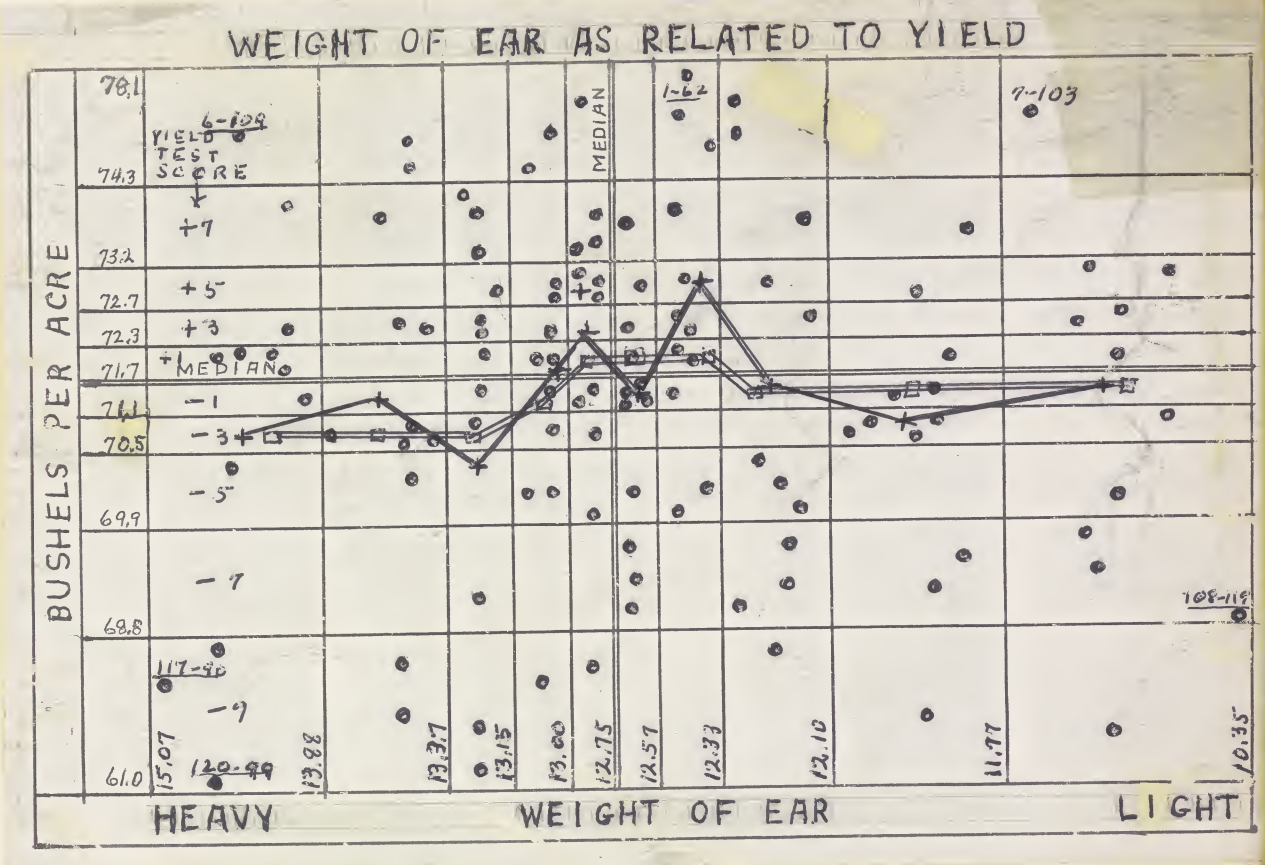


WEIGHT OF EARS AS RELATED TO YIELD AND
EIGHTEEN OTHER DESCRIPTIVE ITEMS

The weight of ears was determined by weighing the ten-ear samples saved from the farmer's samples each year. The ten-ear samples were weighed when thoroughly dry and the weights recorded in ounces.

The average weight per ear varied from 15.07 ounces for sample 117-90 which yielded 67.9 bushels per acre to 10.35 ounces for sample No.108-119 which produced the very low yield of 68.8 bushels per acre. See pages 150 and 151.

The average weight of ear of the highest yielding sample, No.1-62, was 12.48 ounces which was a little less than the median weight of all samples. The weight per ear of the lowest yielding sample, No.120-99, was 14.47 ounces; it being one of the heaviest samples. Farmers liked large ears because "they filled up the wagon box faster by hand-huskers".

The 12 heaviest samples produced slightly less than the 12 lightest samples. The median weight samples yielded a little more than either the heavy or the light eared samples.

The 12 highest yielding samples were slightly lighter than the 12 median or the 12 low yielding samples. See page 125.

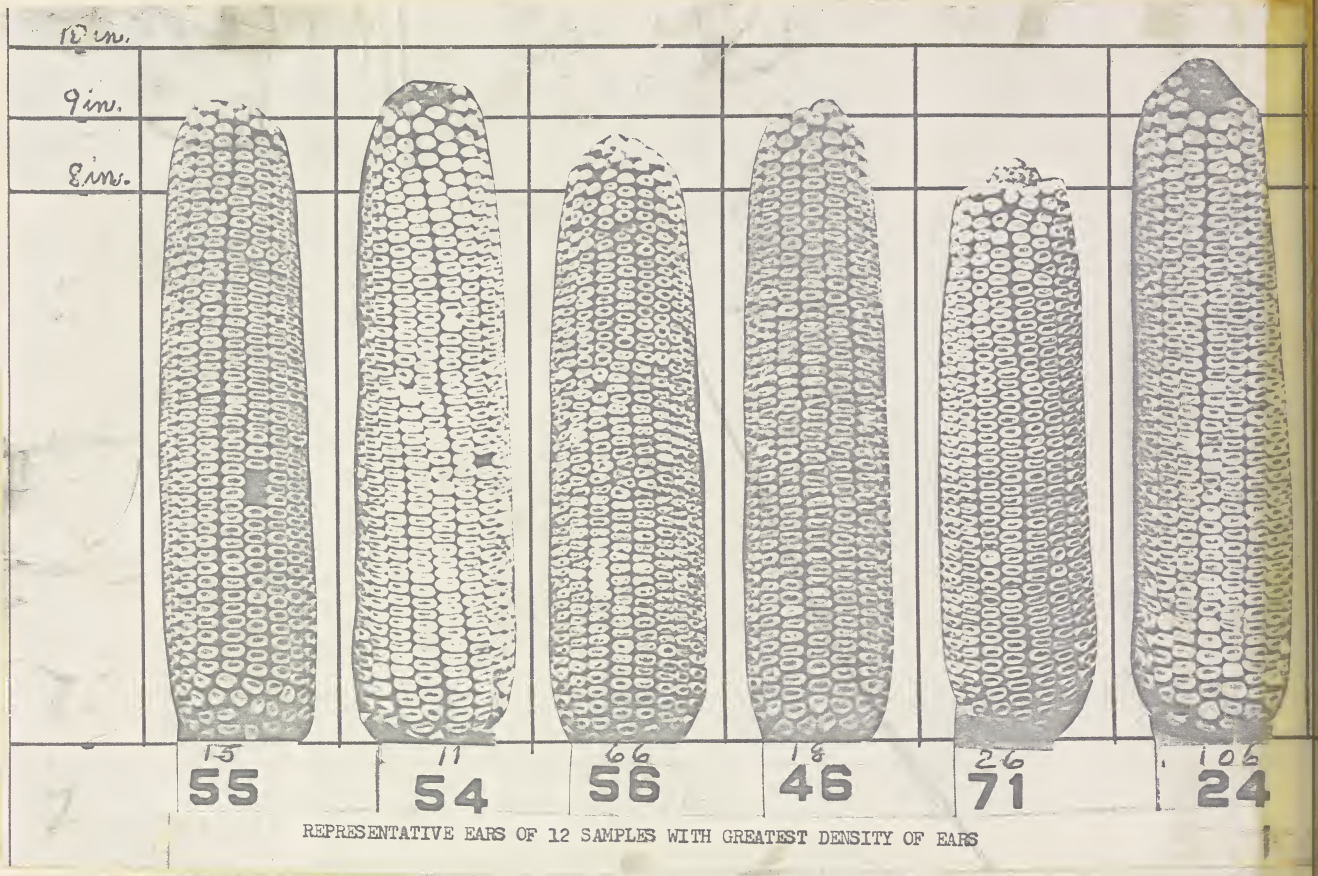
Weight of ear

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples (●)	12 median group samples (▲)	12 decil group 10 samples (○)	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	70.7	91.9	71.3	High 78.1					▲ Median 71.7	○	●				Low 61.0	122–125
Percent of good corn	88.8	90.0	89.6	High 92.7					▲ 89.8	○		●			Low 85.8	126–129
Percent of moisture	22.9	21.6	20.0	Low 17.9	○				21.4	▲				●	High 24.9	130–133
Percent of shelled corn	85.9	85.7	85.6	High 87.3				●	85.8	▲ ○					Low 84.5	134–137
Density of shelled corn	33.4	34.0	34.5	Heavy 35.6			○		34.2	▲				●	Light 32.4	138–141
Germination index	86.2	84.6	87.8	High 93.8					○ 87.1	●		▲			Low 64.5	142–145
Disease index	72.1	76.1	75.5	Little 90.2					▲ 75.7	○		●			Much 58.3	146–149
Weight of ears	14.42	12.74	11.29	Heavy 15.07					12.75					○	Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	39.31	39.59	39.57	Heavy 42.03					▲ ○ Median 39.54		●				Light 37.58	154–157
Kernel development	57.1	58.8	57.2	Good 78.6				▲	● ○ 56.4						Poor 38.3	158–161
Indentation index	60.9	45.3	43.1	Smooth 16.5					○ 44.7	▲				●	Rough 87.3	162–165
Length of kernels	14.29	13.43	13.09	Long 15.72	●				▲ 13.41				○		Short 12.47	166–169
Width of kernels	7.96	8.06	8.03	Wide 9.01				▲ ○	● 7.92						Narrow 7.12	170–173
Thickness of kernels	4.27	4.20	4.09	Thick 4.42			●		4.21	▲			○		Thin 3.89	174–177
Length of ears	9.33	8.92	8.54	Long 9.67	●					8.96 ▲				○	Short 8.25	178–181
Diameter of ears	2.238	2.144	2.060	Small 2.012	○				2.137			▲	●		Large 2.304	182–185
No. of rows of kernels	19.2	18.1	17.2	Small 14.9		○		▲	18.3			●			Large 2.09	186–189
Color of shank index	65.8	69.0	69.0	White 86.7					▲ ○ 67.7	●					Dark 36.7	190–193
Condition of shank index	40.6	36.8	40.8	Smooth 58.3					● ○ 38.4	▲					Rough 18.3	194–197
Variation index	6.7	7.2	7.6	Uniform 3.0			●		7.0		▲ ○				Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



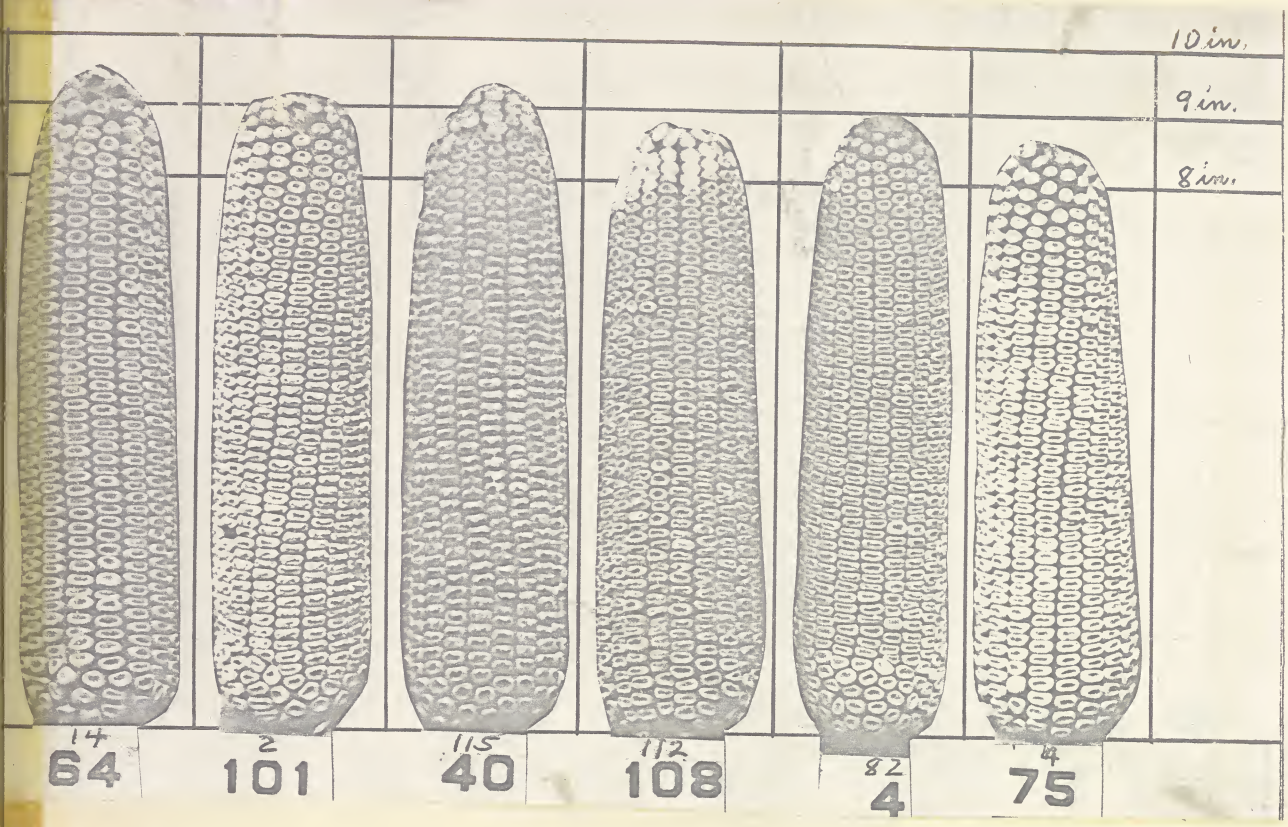
REPRESENTATIVE EARS OF 12 SAMPLES WITH GREATEST DENSITY OF EARS

DENSITY OF EAR

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 156-157)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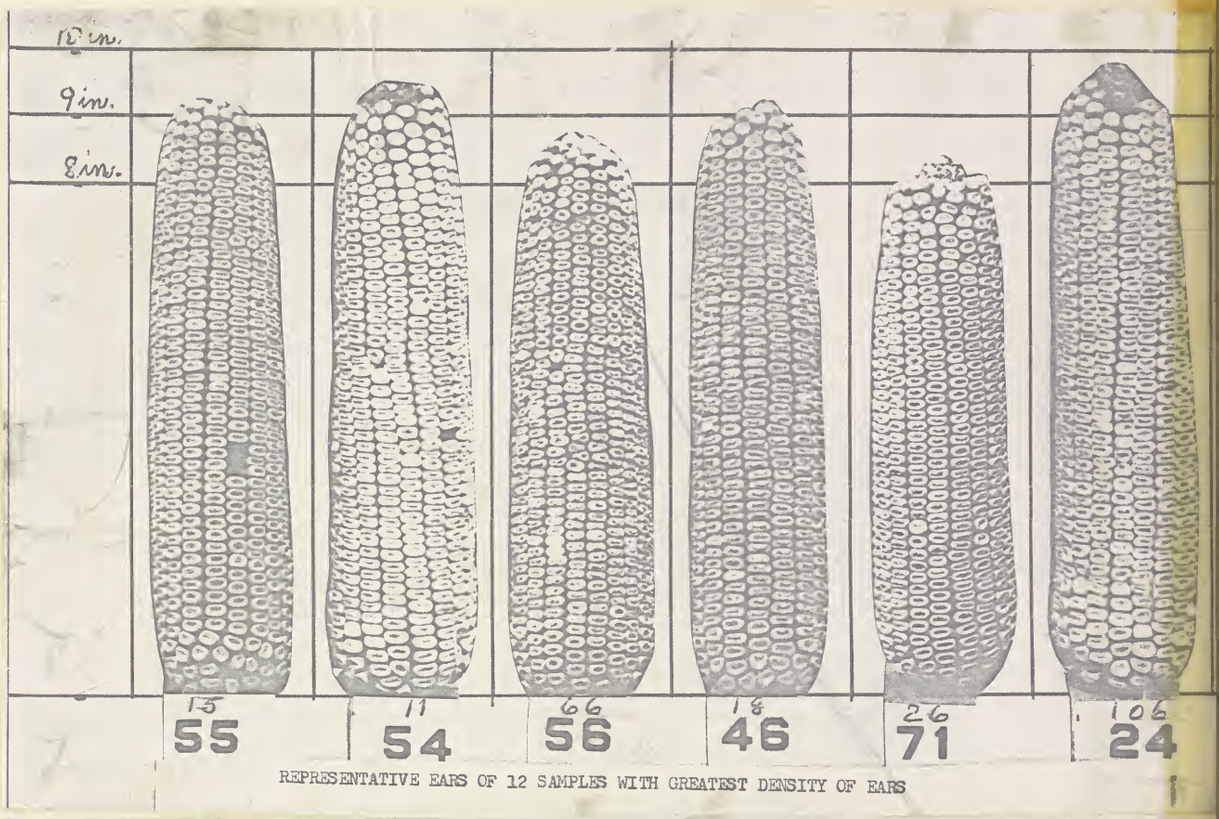
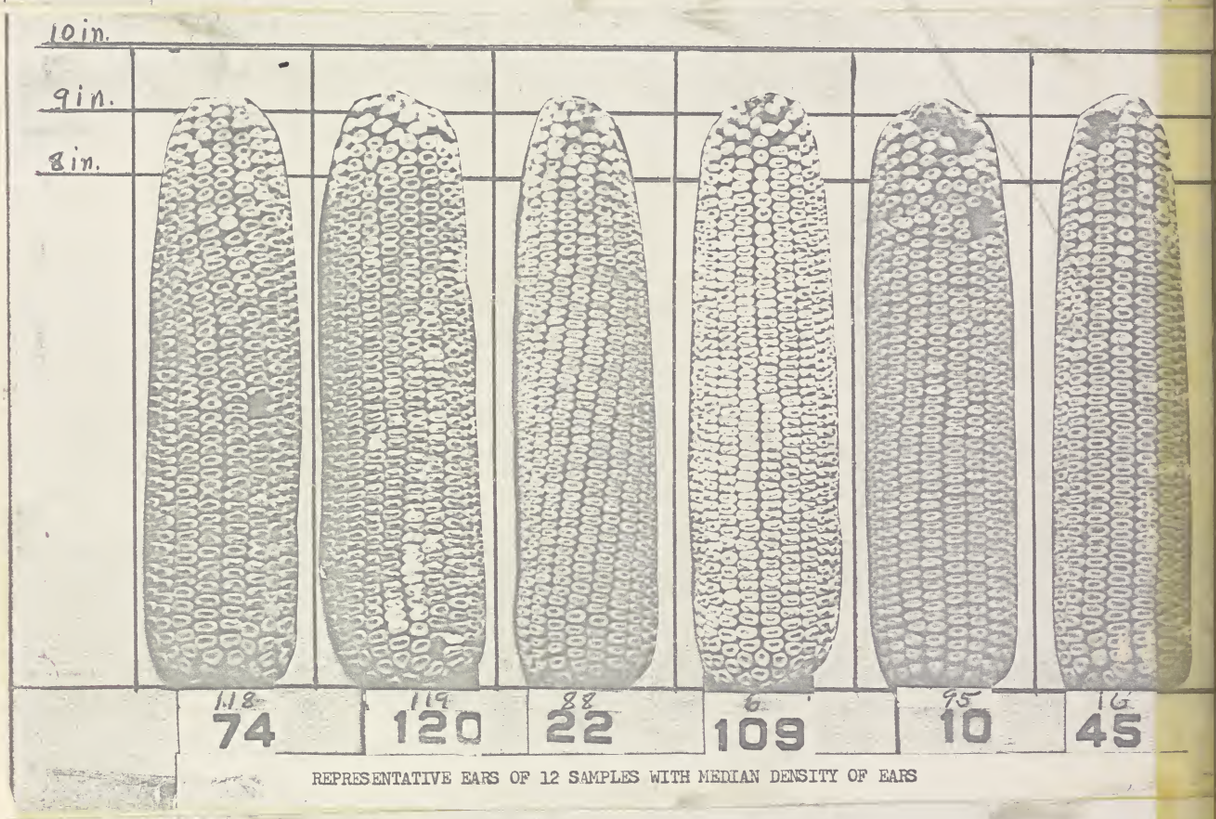
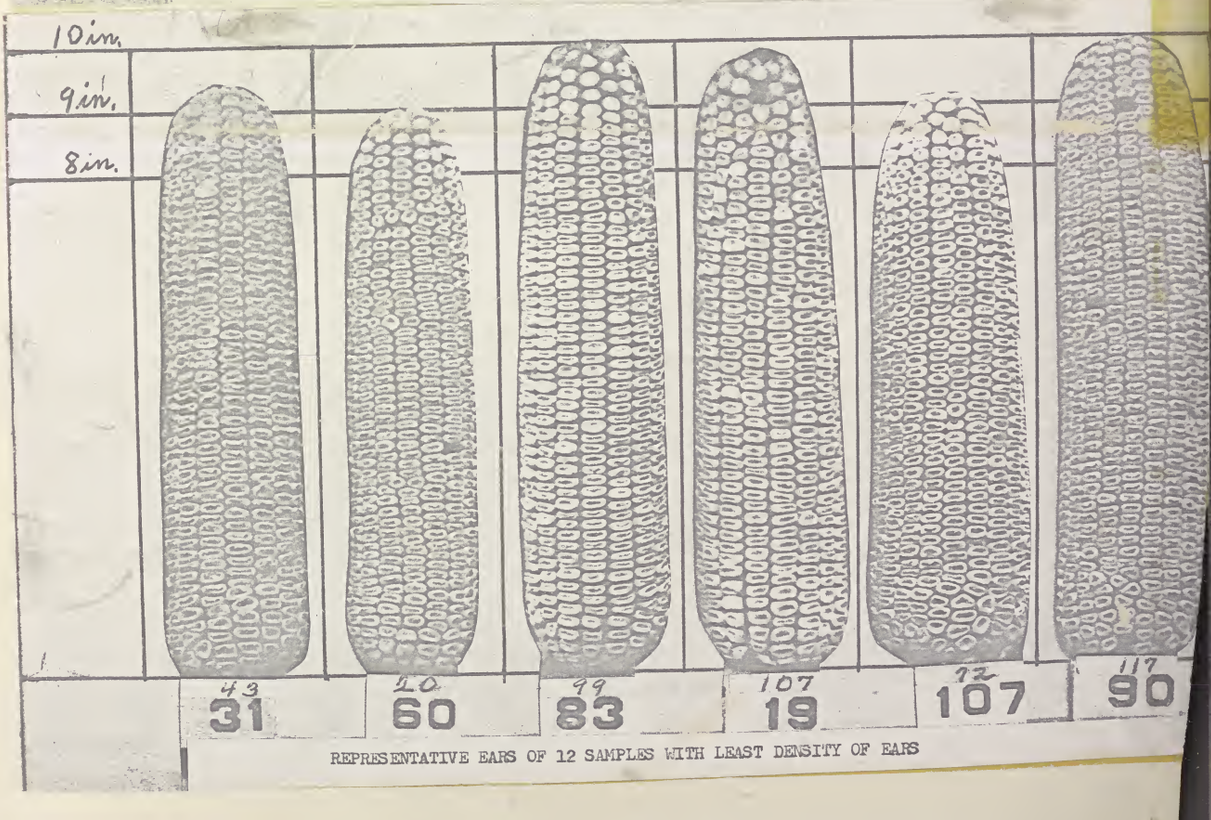


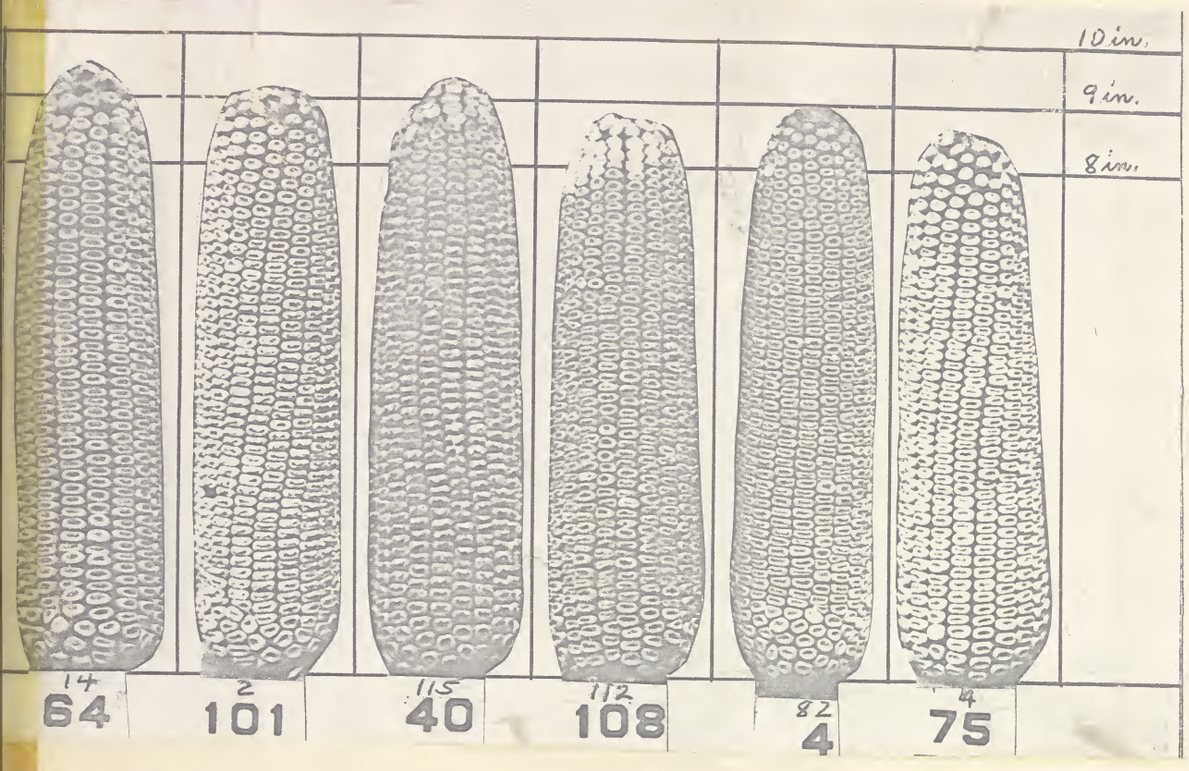
REPRESENTATIVE EARS OF 12 SAMPLES WITH GREATEST DENSITY OF EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN DENSITY OF EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH LEAST DENSITY OF EARS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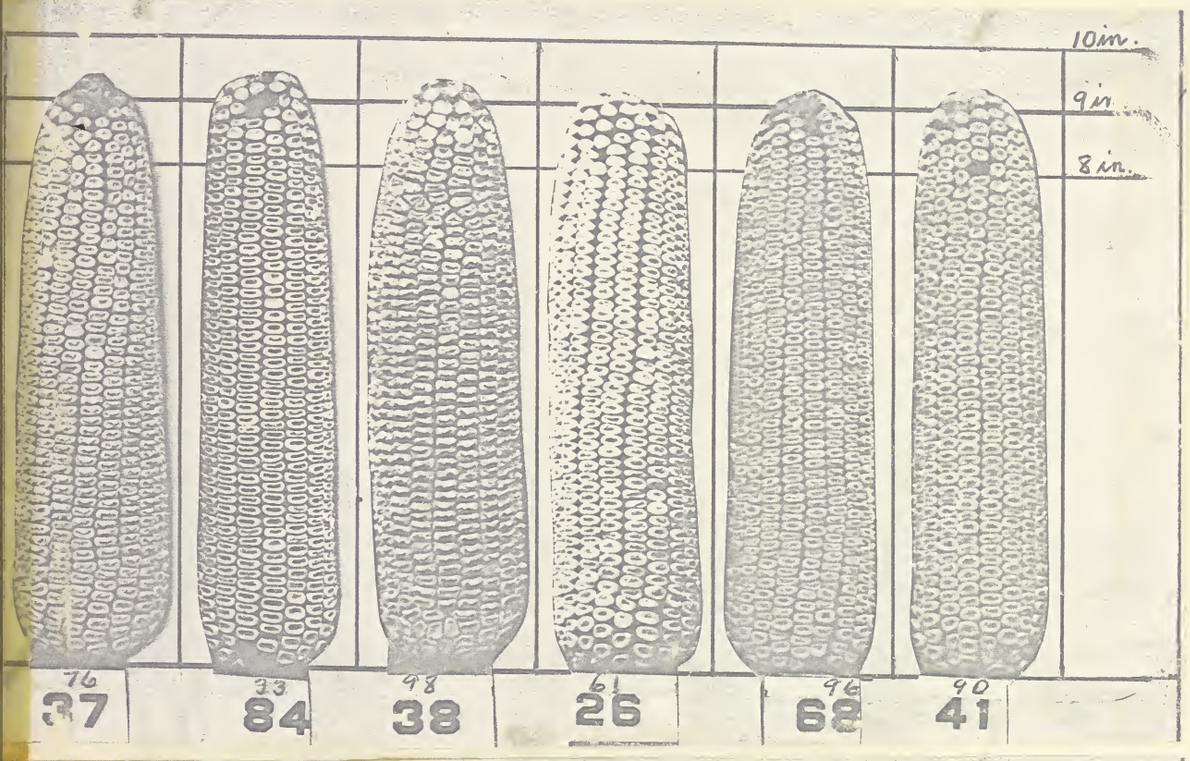
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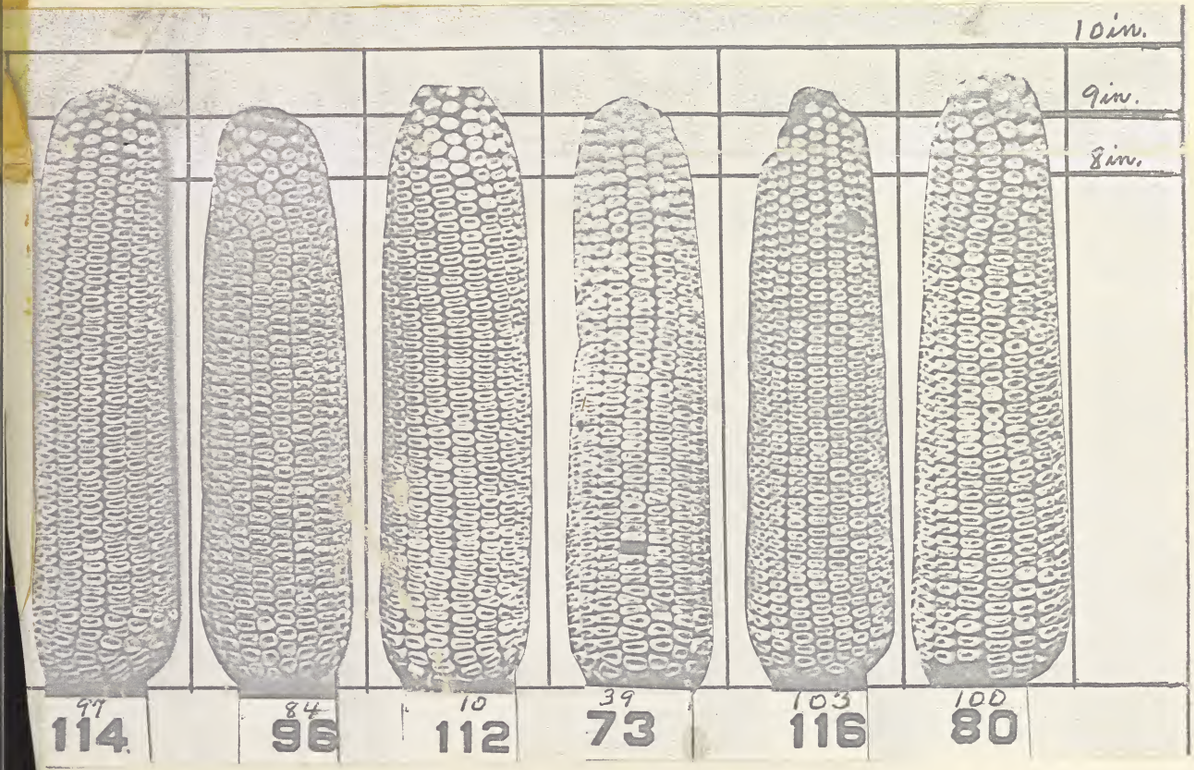
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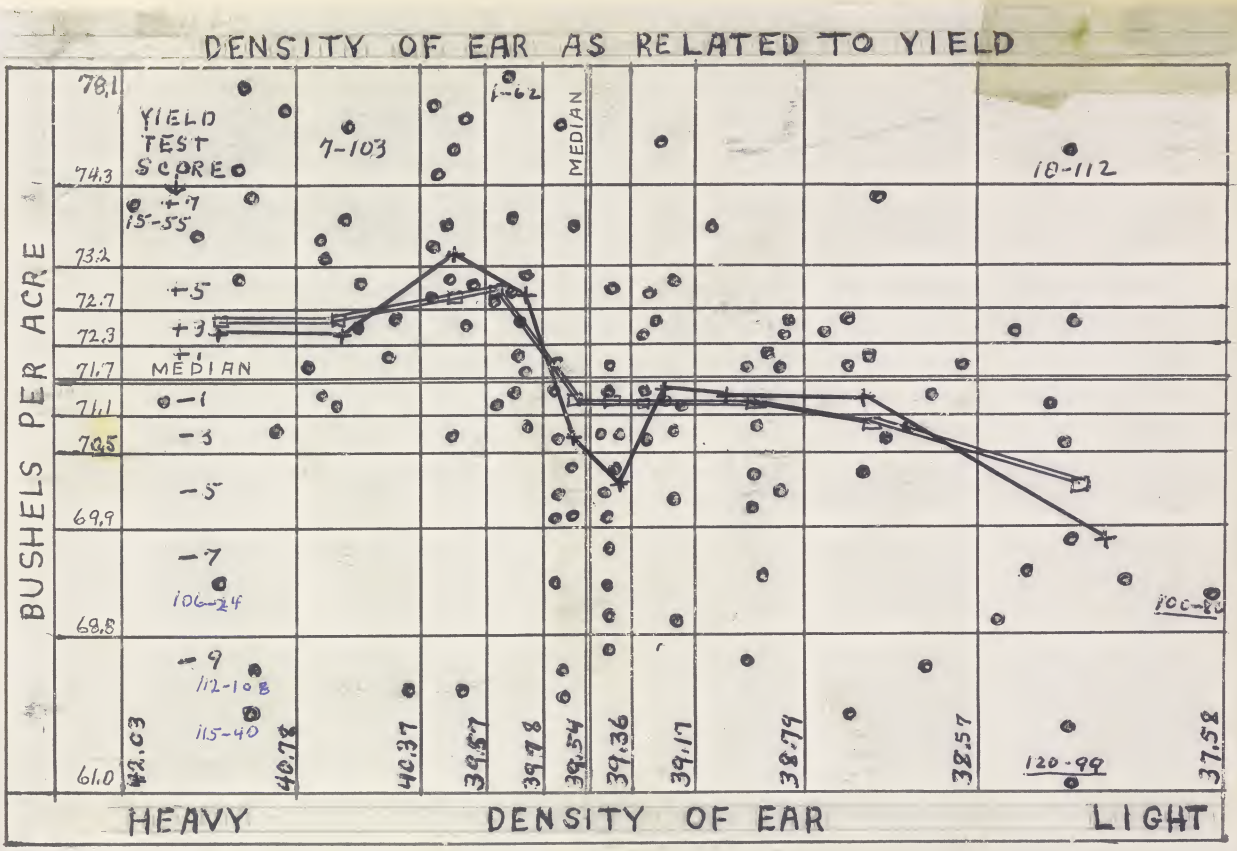


DENSITY OF EARS AS RELATED TO YIELD
AND EIGHTEEN OTHER DESCRIPTIVE ITEMS

The density of ear was determined by dividing the average weight of ear in ounces by the cubic inches of volume to give the weight per cubic inch. A comparative volume in cubic inches was determined by multiplying the square of the diameter by .7854, times the length of the ear. In the charts the result was multiplied by 100. This measure is not exact but it does give a comparative value. Corn judges described ears with high density as "solid ears that are heavy for their size"

The density of ears varied from 42.03 for Sample No.15-55 which yielded 74.0 bushels per acre down to 37.58 for sample No. 100-80 which yielded only 69.5 bushels per acre. See the ears on pages 154 and 155.

The trend line was definitely downward from samples of high to samples of low density; however there were a few notable exceptions as noted below. The downward trend in the yield line was more definite and consistant for density of ear than for any of the other descriptive items considered by judges. Compare the chart on this page with those on following pages as a support for this statement.

As notable exceptions to the trend line see sample No.10-112 with high yield and low density and samples No's 106-24, 112-108 and 115-40 with high density and low yields. This shows quite clearly the truth of the hypothesis on which the Woodford County Corn Yiled Test was undertaken; namely, that only by field tests of yield and quality could the most profitable strains of corn be found and the least profitable eliminated. In that regard the Test was highly successful.

This study also confirms the often repeated statement of George Krug and some oldtime teachers of seed corn selection that, "The first consideration in selecting ears for seed or for corn shows was, "Pick up each ear in turn, heft it and twist it and give preference to those ears that were solid and heavy for their size, and to discard all ears that were loose on the cob and/or felt light".

Density of ears

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples (●)	12 median group samples (▲)	12 decil group 10 samples (○)	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	72.4	70.7	69.8	High 78.1				●	Median		▲		○		Low 61.0	122–125
Percent of good corn	90.0	89.4	89.2	High 92.7					●		▲ ○				Low 85.8	126–129
Percent of moisture	21.3	21.7	22.0	Low 17.9					●	▲	○				High 24.9	130–133
Percent of shelled corn	86.0	85.6	85.6	High 87.3				●		▲ ○					Low 84.5	134–137
Density of shelled corn	34.5	34.1	34.0	Heavy 35.6			●			▲ ○					Light 32.4	138–141
Germination index	87.1	85.9	87.7	High 93.8					● ○		▲				Low 64.5	142–145
Disease index	74.8	74.2	72.6	Little 90.2						●	▲ ○				Much 58.3	146–149
Weight of ears	13.05	12.88	12.97	Heavy 15.07				●	▲ ○						Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	41.19	39.53	38.15	Heavy 42.03	●				Median ▲						Light 37.58 ○	154–157
Kernel development	61.9	53.3	54.0	Good 78.6				●				▲			Poor 38.3	158–161
Indentation index	46.8	48.0	50.6	Smooth 16.5					● ▲			○			Rough 87.3	162–165
Length of kernels	13.53	13.46	13.63	Long 15.72				● ○	▲						Short 12.47	166–169
Width of kernels	7.92	8.00	8.17	Wide 9.01			○	▲	●						Narrow 7.12	170–173
Thickness of kernels	4.18	4.18	4.22	Thick 4.42					○	● ▲					Thin 3.89	174–177
Length of ears	8.91	8.93	9.14	Long 9.67			○			● ▲					Short 8.25	178–181
Diameter of ears	2.219	2.155	2.174	Small 2.012						2.137	▲	○	●		Large 2.304	182–185
No. of rows of kernels	18.2	18.4	17.9	Small 14.9				○	●	▲					Large 2.09	186–189
Color of shank index	65.0	66.6	72.0	White 86.7				○		● ▲					Dark 36.7	190–193
Condition of shank index	45.9	36.9	36.9	Smooth 58.3			●			▲ ○					Rough 18.3	194–197
Variation index	6.4	7.5	7.2	Uniform 3.0	●					7.0	▲ ○				Uneven 11.0	198–201

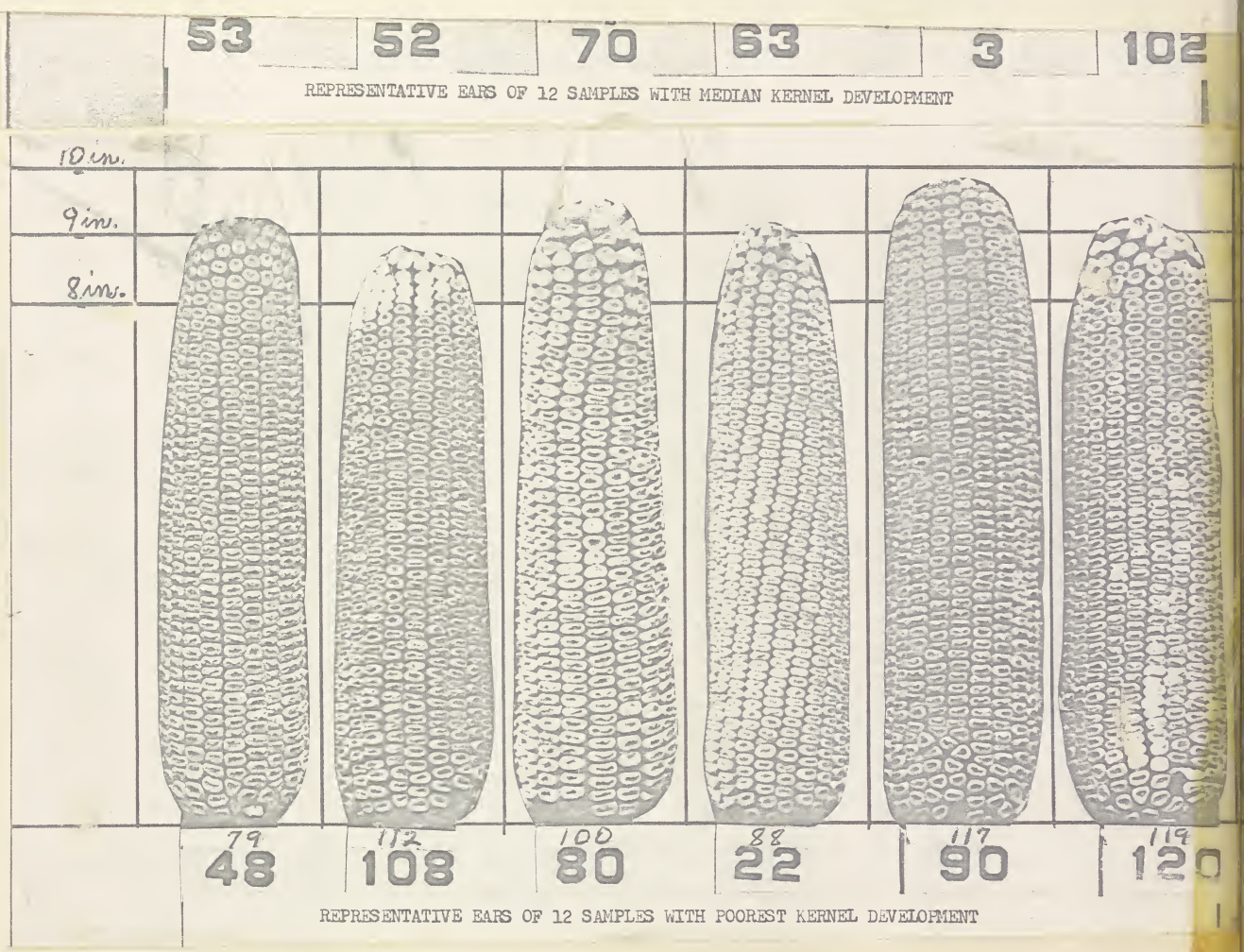
★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

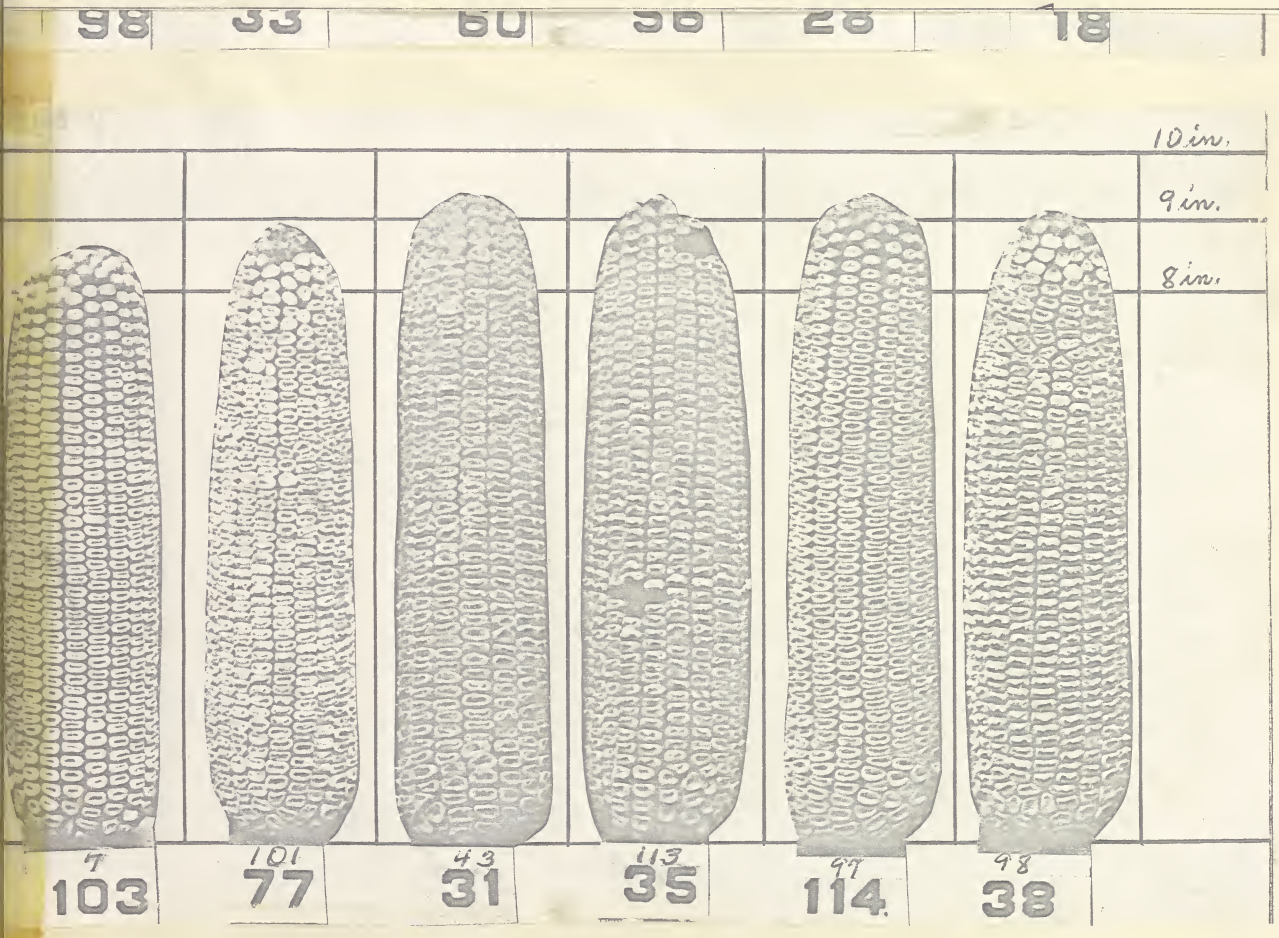
KERNEL DEVELOPMENT

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 160-161)

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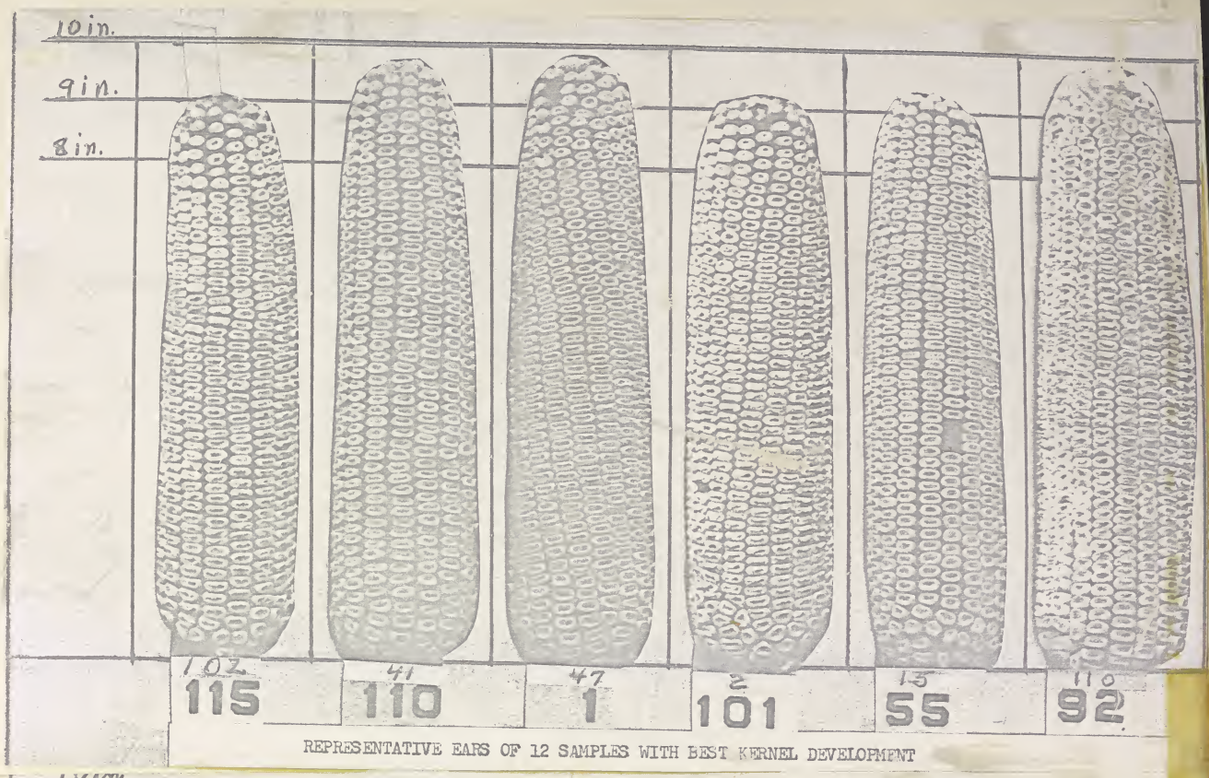
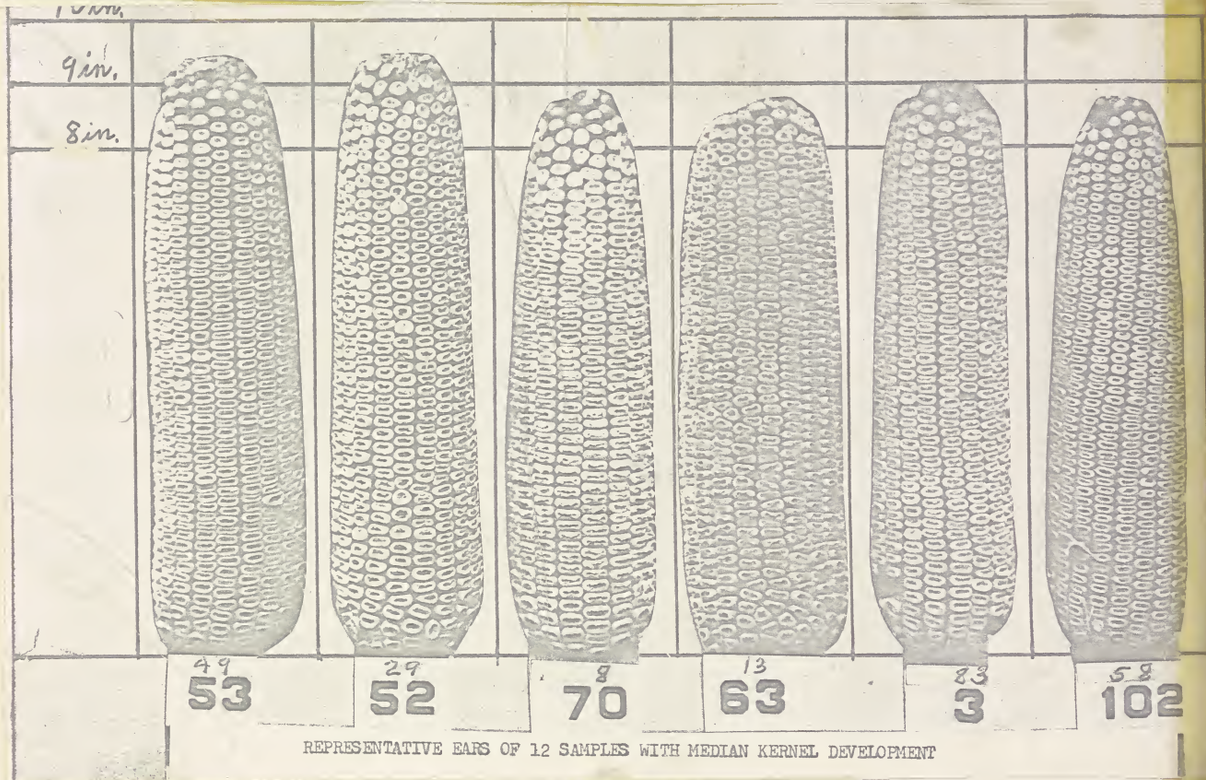
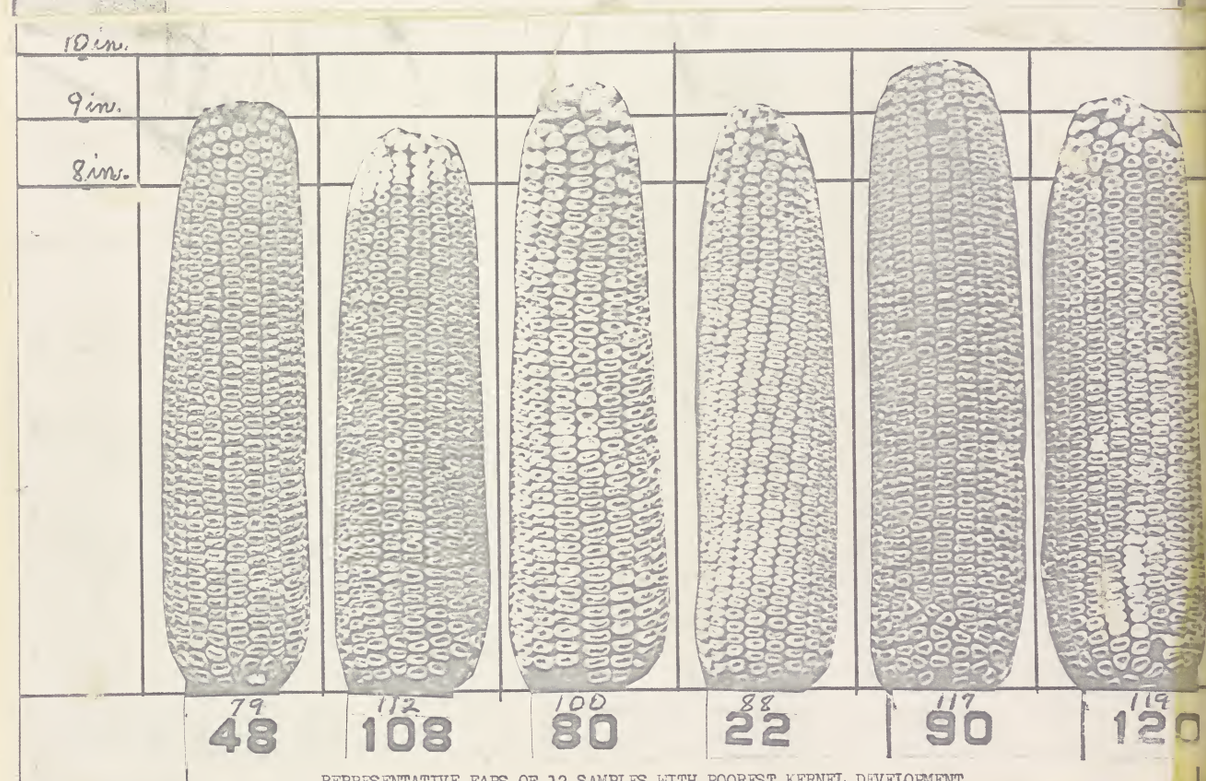


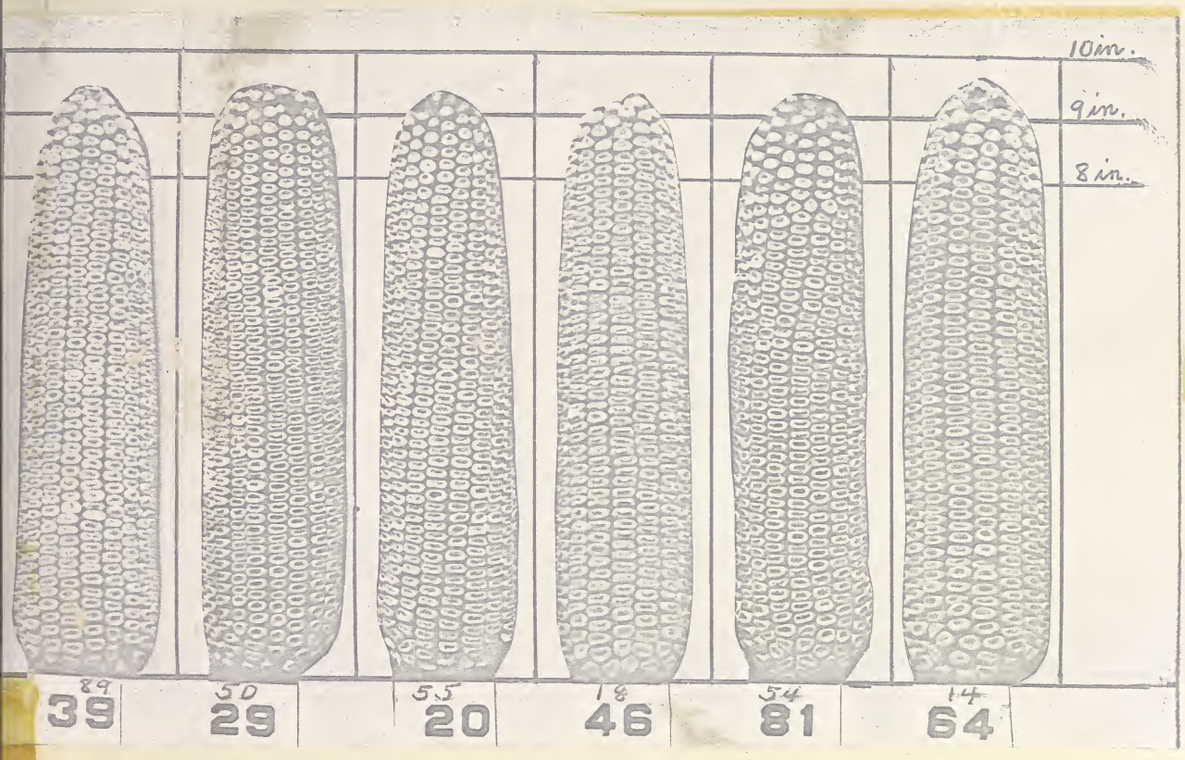
REPRESENTATIVE EARS OF 12 SAMPLES WITH BEST KERNEL DEVELOPMENT



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN KERNEL DEVELOPMENT



REPRESENTATIVE EARS OF 12 SAMPLES WITH POOREST KERNEL DEVELOPMENT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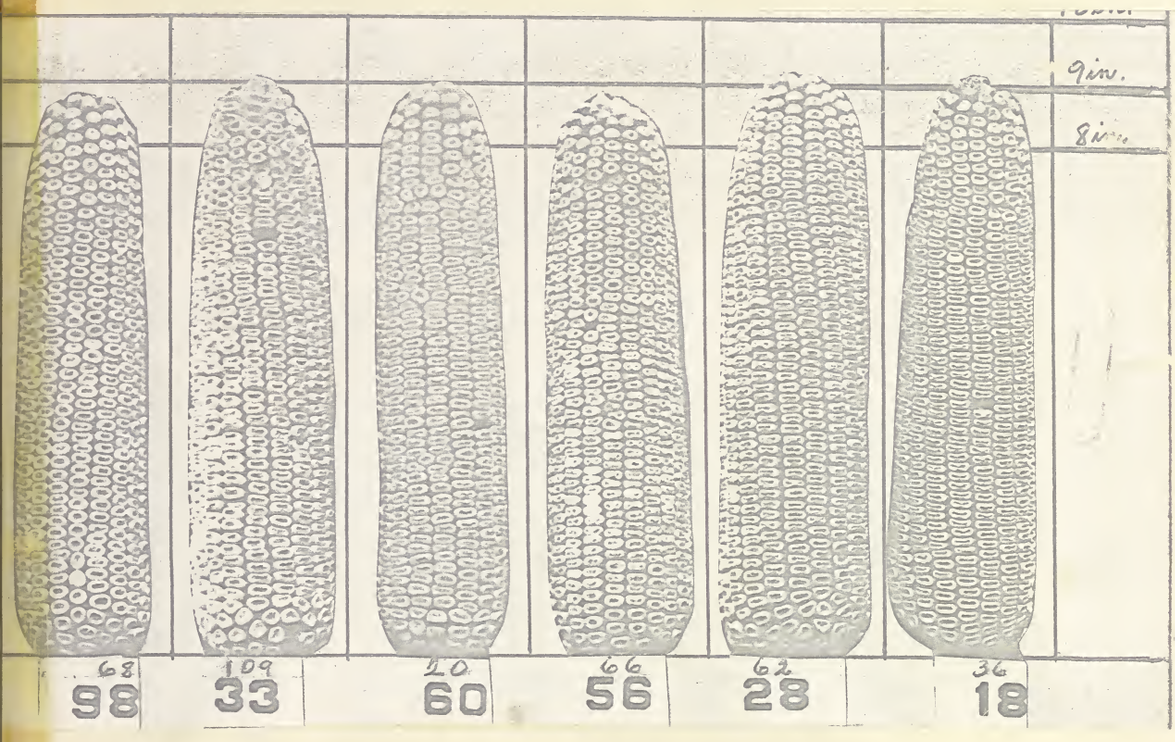
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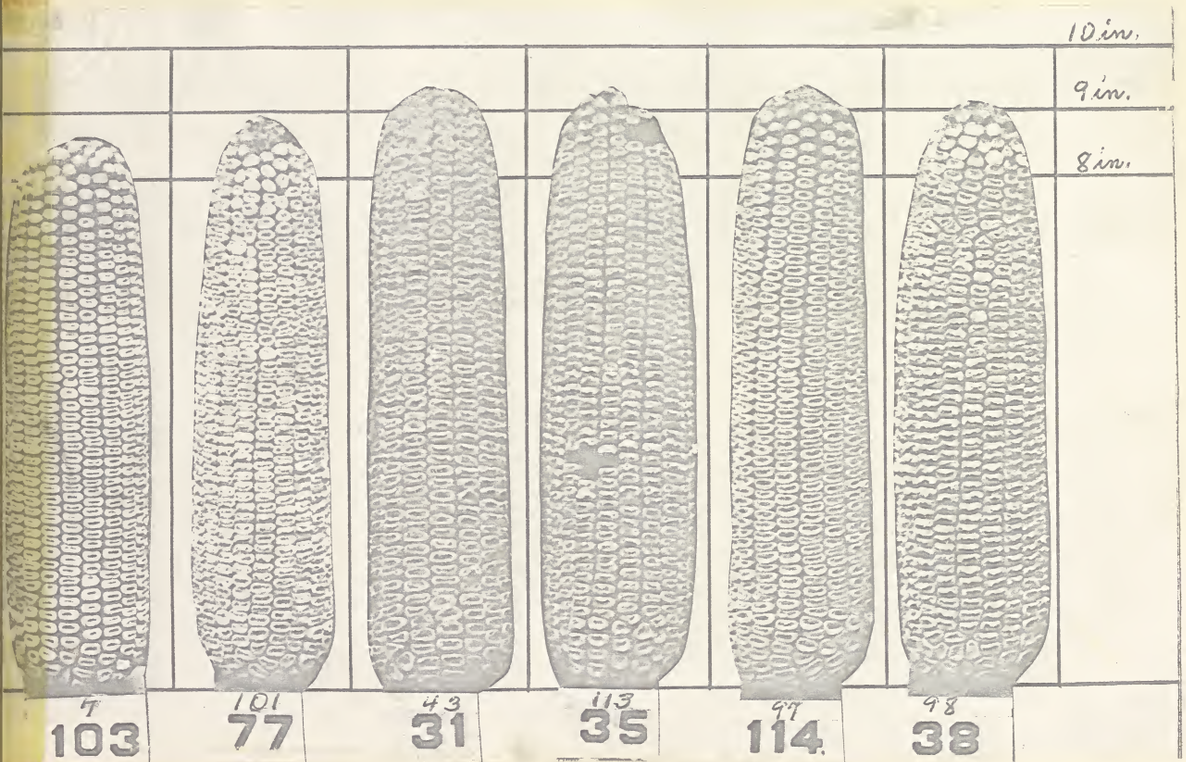
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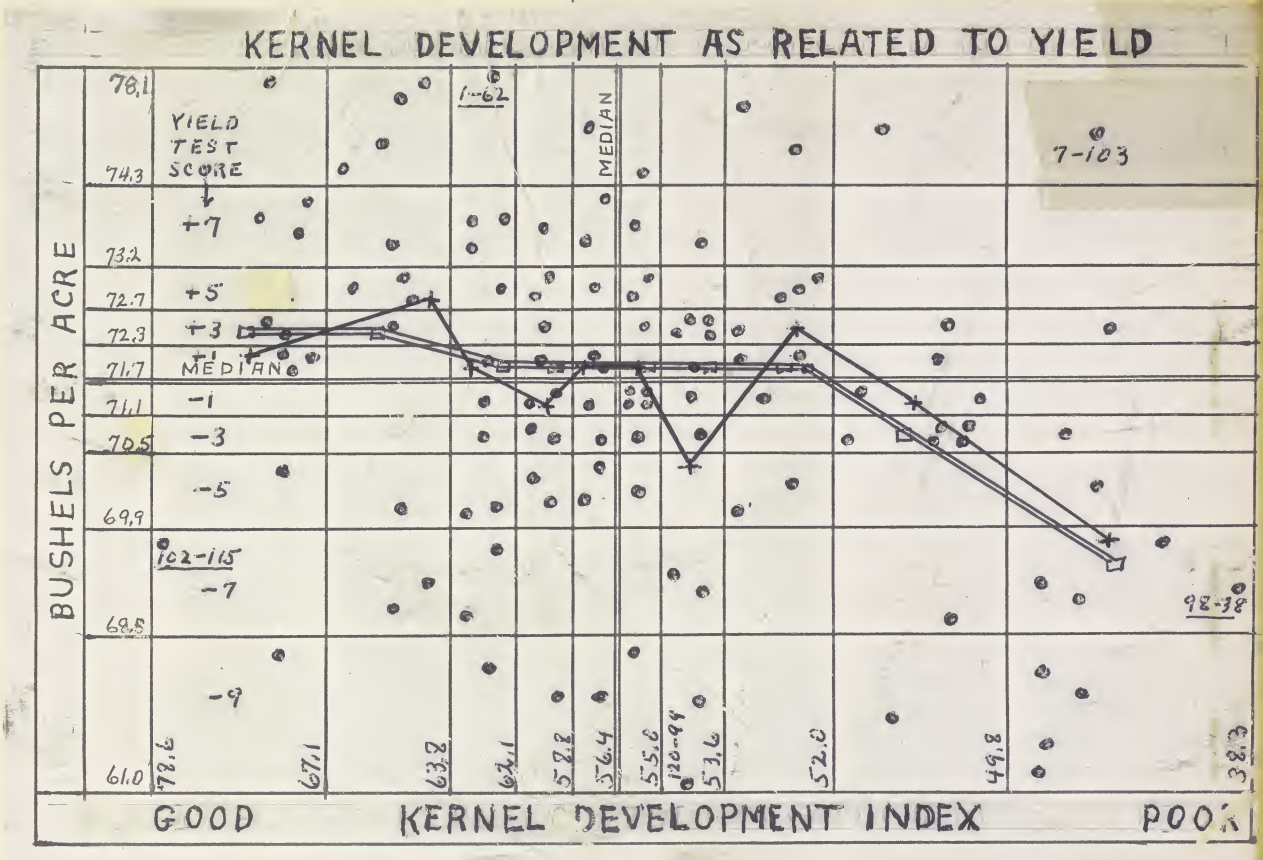


KERNEL DEVELOPMENT AS RELATED TO YIELD
AND EIGHTEEN OTHER DESCRIPTIVE ITEMS

The kernel development index was developed by studying the shelled corn of the samples brought in for the test. The shelled samples were graded as good, fair or, poor in kernel development. Those graded as good were plump from crown to tip-cap and were bright, showing muck luster and the appearance described as oily or horny. Kernels graded as poor were those badly shrunken at their tips and/or those showing much of the whitish appearance called starchy. The kernel development index was calculated by adding to the number of ears showing good development, one-half of the ears showing fair development, dividing the sum by the number of ears and multiplying by 100. This gave an index of 100 to a sample all of whose ears showed good and an index of 0 to a sample all of whose ears showed poor development.

A study of the chart above and the data on page 161 shows that there was a definite trend downward in yield from the samples showing good to those showing poor development. This downward trent in the yield line from the best to the poorest was more definite than for any other descriptive except density of ear. It is interesting to note on page 161 that the average of the 12 samples with the best kernel development were on the positive side in ten of the other items considered by corn judges and that the twelve samples that were poorest in kernel development were on the negative side in nine of the eleven items.

This study together with the previous study of density of ear confirm the value of the practice followed by George Krug of shelling off a few kernels from the butt end of each ear and selecting for seed only the heavy, solid ears whose kernels were bright and plump from crown to tip of kernel.

However again notable exceptions are seen. Sample No.7-103 was seventh in yield but was among the poorest in kernel development; while No.102-115 was best in kernel development but was one of the lowest yileding samples. A study of the record of sample No. 102-115 on page 102 shows that it was a very early, small eared, short grained strain of corn. It is very possible that if planted thicker than others it would have been higher yielding.

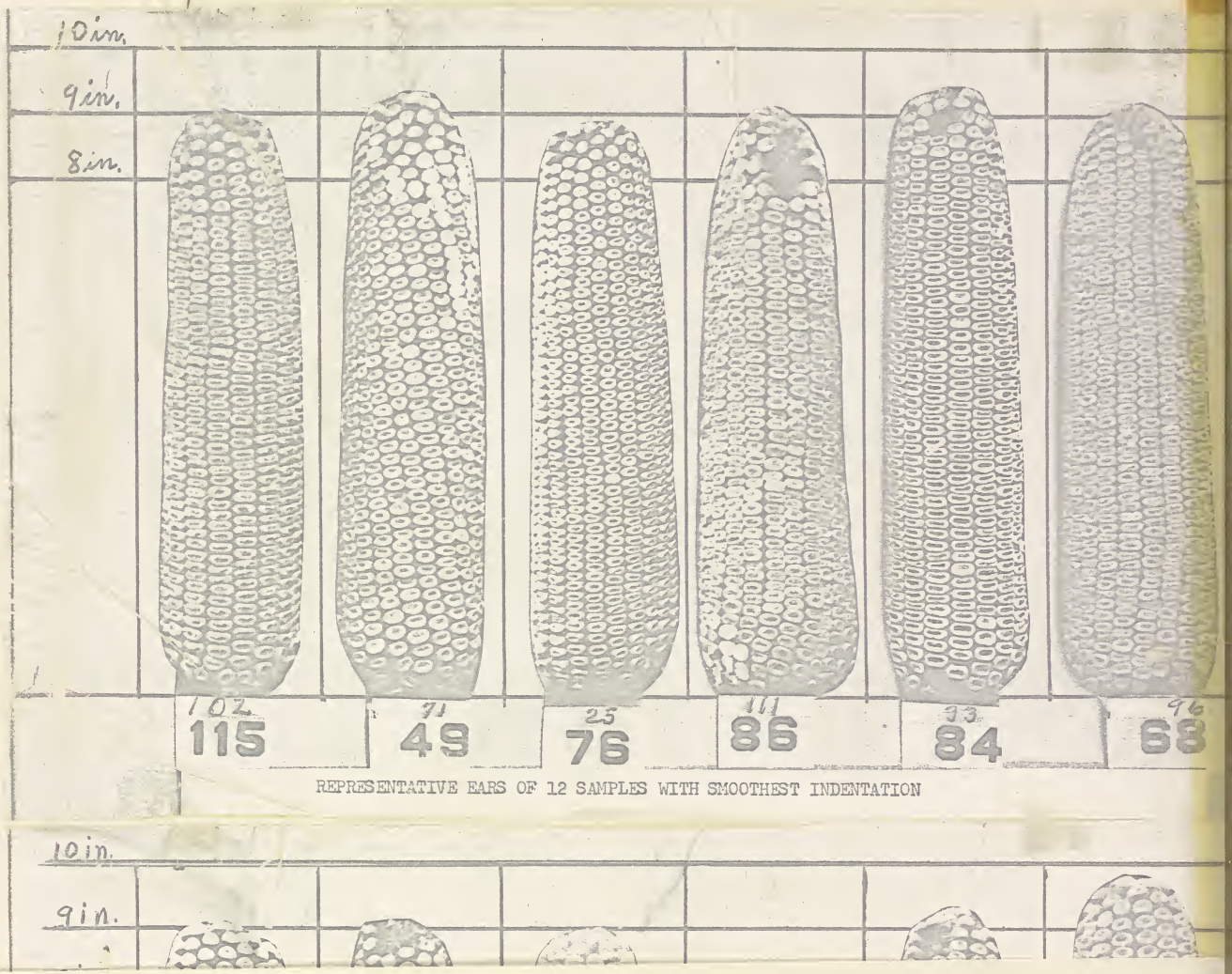
Kernel development

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vo 1.II
Items that required field or laboratory tests																
Bushels per acre	72.2	72.1	69.8	High 78.1					● ▲ Median 71.7				○		Low 61.0	122–125
Percent of good corn	90.3	90.0	89.3	High 92.7				●	▲		○				Low 85.8	126–129
Percent of moisture	21.3	21.5	21.8	Low 17.9					●	▲ ○ 21.4					High 24.9	130–133
Percent of shelled corn	85.6	85.8	85.7	High 87.3					▲	● ○ 85.8					Low 84.5	134–137
Density of shelled corn	34.5	34.4	34.0	Heavy 35.6			● ▲			○ 34.2					Light 32.4	138–141
Germination index	87.5	86.2	90.5	High 93.8			○			▲ 87.1	●				Low 64.5	142–145
Disease index	78.4	79.1	76.8	Little 90.2			▲	● ○		75.7					Much 58.3	146–149
Weight of ears	13.18	12.53	12.94	Heavy 15.07			●		○ 12.75		▲				Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	40.29	39.89	39.19	Heavy 42.03			●	▲		Median 39.54	○				Light 37.58	154–157
Kernel development	69.6	56.4	46.1	Good 78.6						▲ 56.4				○ 38.8	Poor	158–161
Indentation index	40.4	46.7	55.3	Smooth 16.5				●		▲ 44.7		○			Rough 87.3	162–165
Length of kernels	13.39	13.42	13.60	Long 15.72					▲	● 13.41				○	Short 12.47	166–169
Width of kernels	7.99	7.95	7.82	Wide 9.01				●	▲		○				Narrow 7.12	170–173
Thickness of kernels	4.26	4.18	4.12	Thick 4.42			●			▲ 4.21		○			Thin 3.89	174–177
Length of ears	9.14	8.77	8.91	Long 9.67			●			8.96 ○		▲			Short 8.25	178–181
Diameter of ears	2.134	2.135	2.172	Small 2.012					● ▲	2.137		○			Large 2.304	182–185
No. of rows of kernels	18.0	18.3	18.9	Small 14.9				●	▲	18.3	○				Large 2.09	186–189
Color of shank index	71.7	68.3	63.9	White 86.7				●	▲	67.7	○				Dark 36.7	190–193
Condition of shank index	41.7	37.8	37.6	Smooth 58.3				●		▲ 38.4 ○					Rough 18.3	194–197
Variation index	6.5	7.2	6.9	Uniform 3.0			● ○			7.0	▲				Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



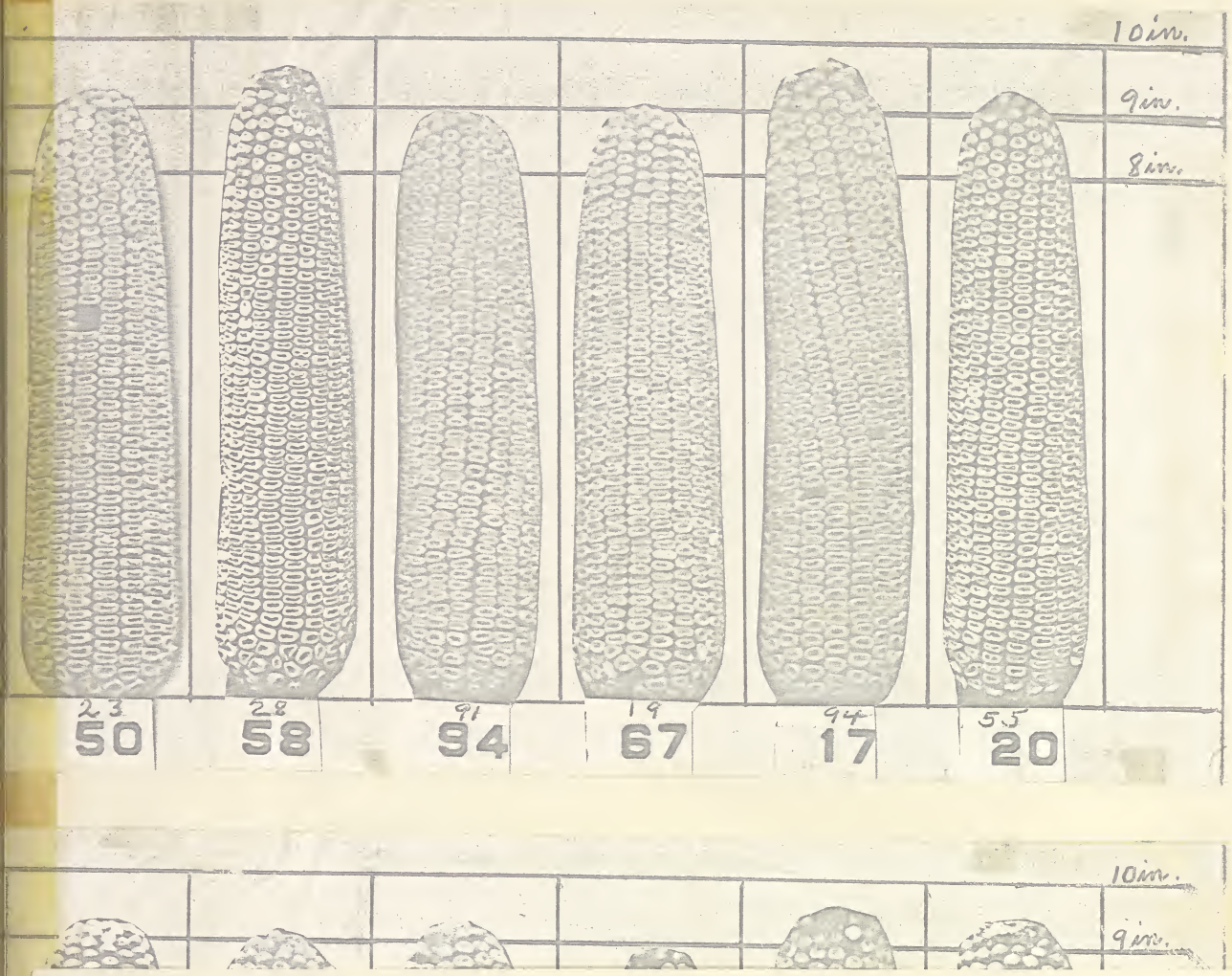
REPRESENTATIVE EARS OF 12 SAMPLES WITH SMOOTHEST INDENTATION

INDENTATION

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 164-165)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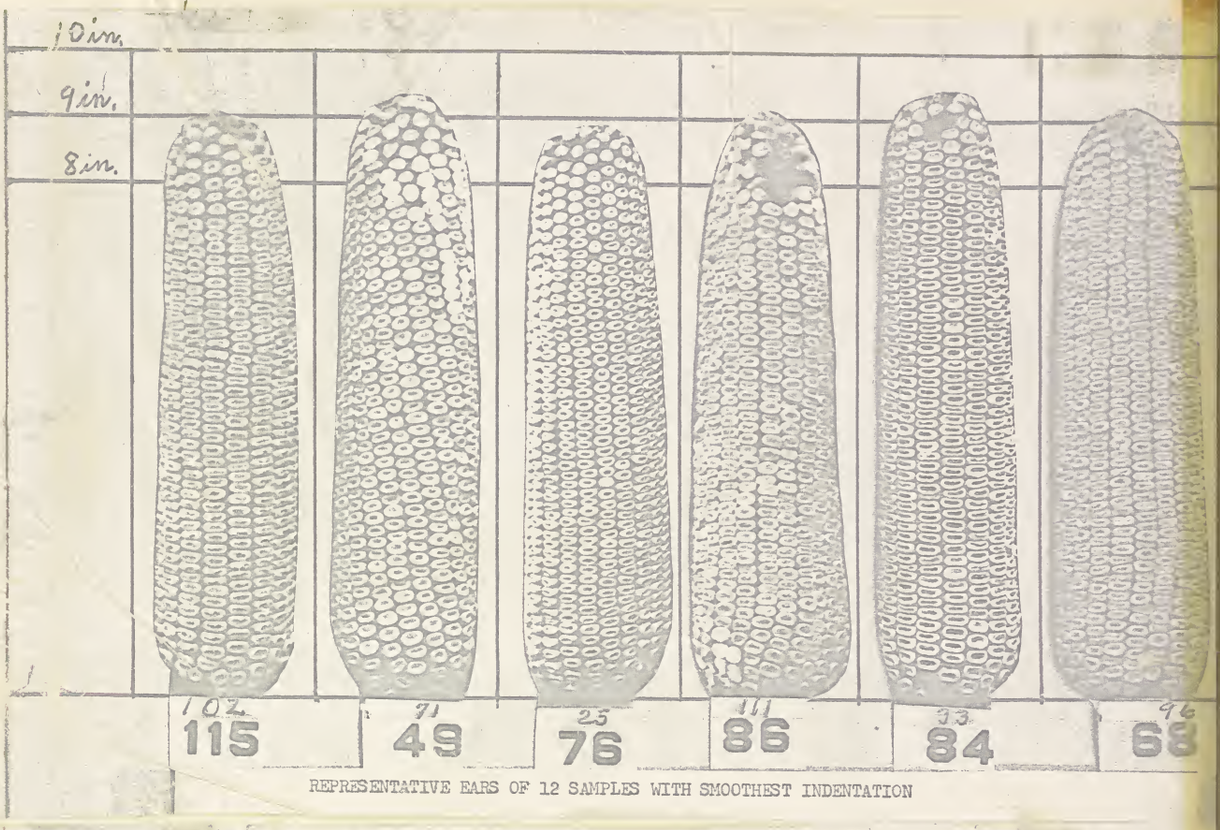
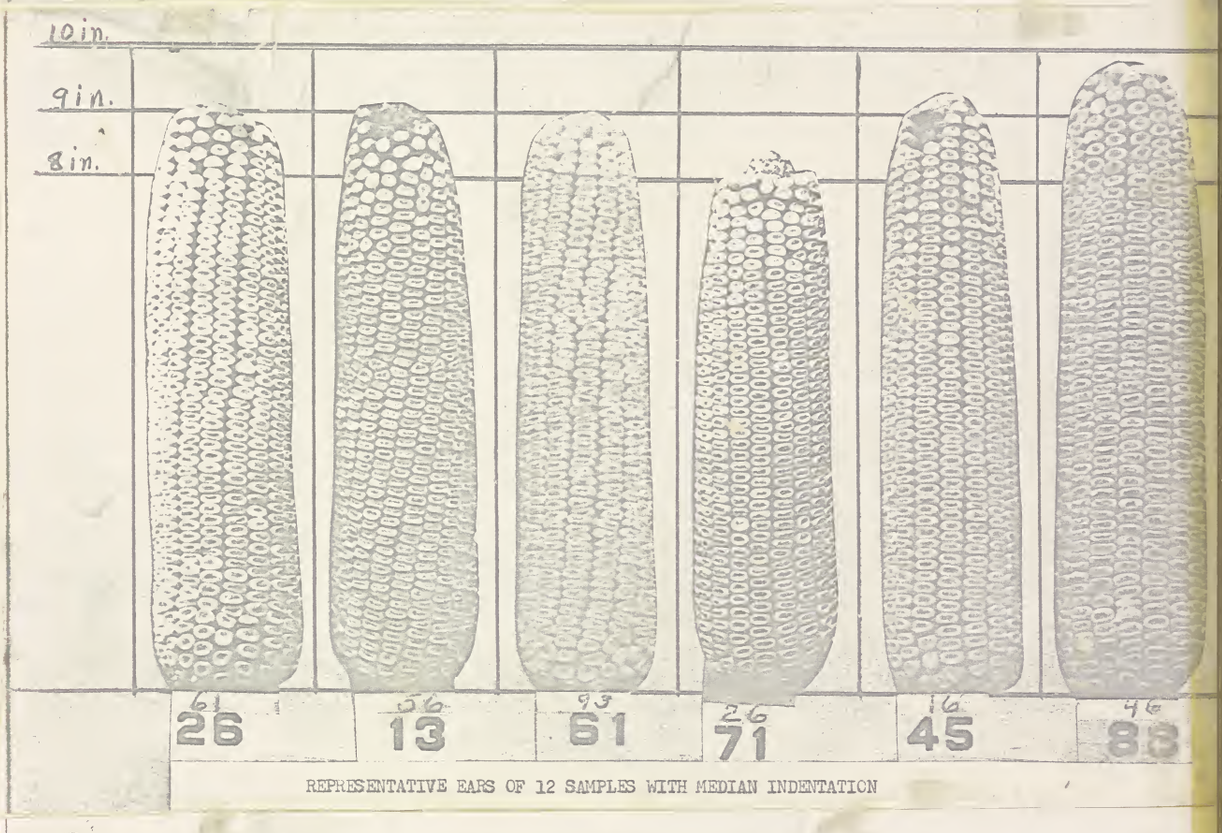
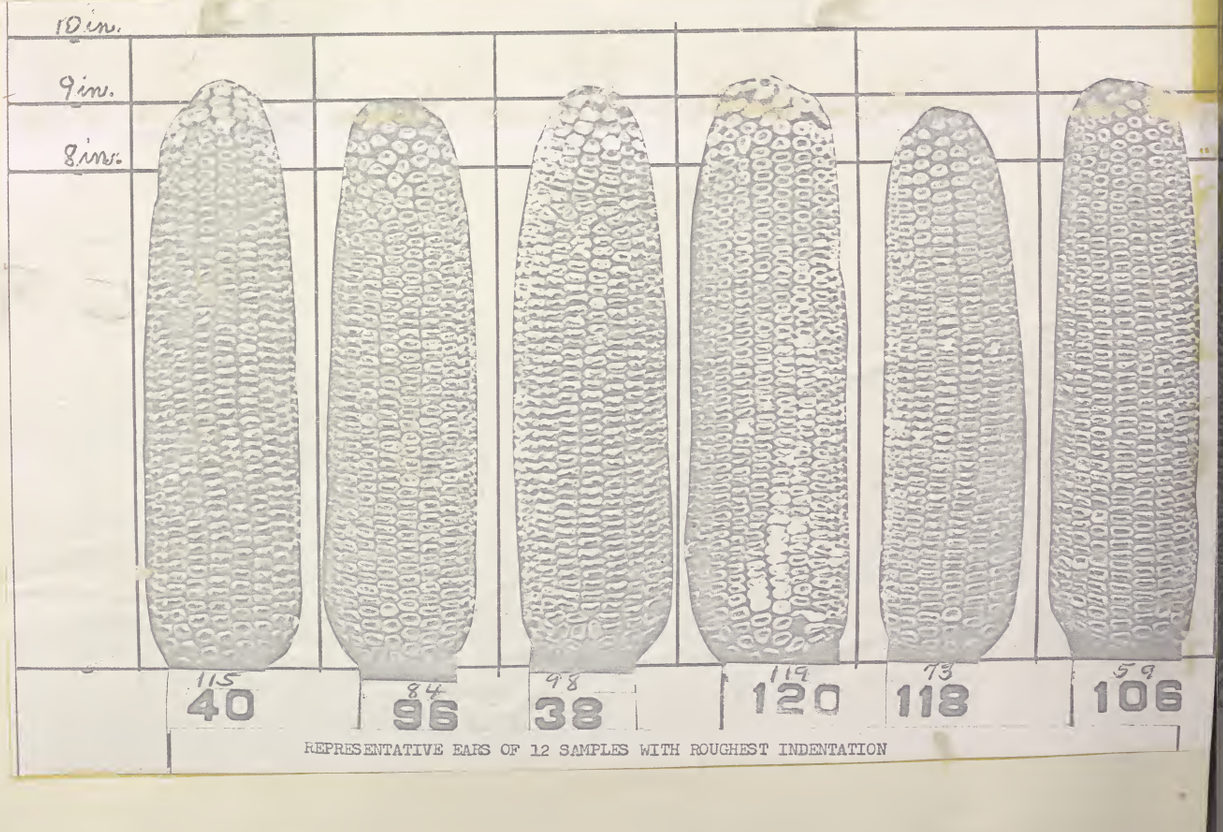


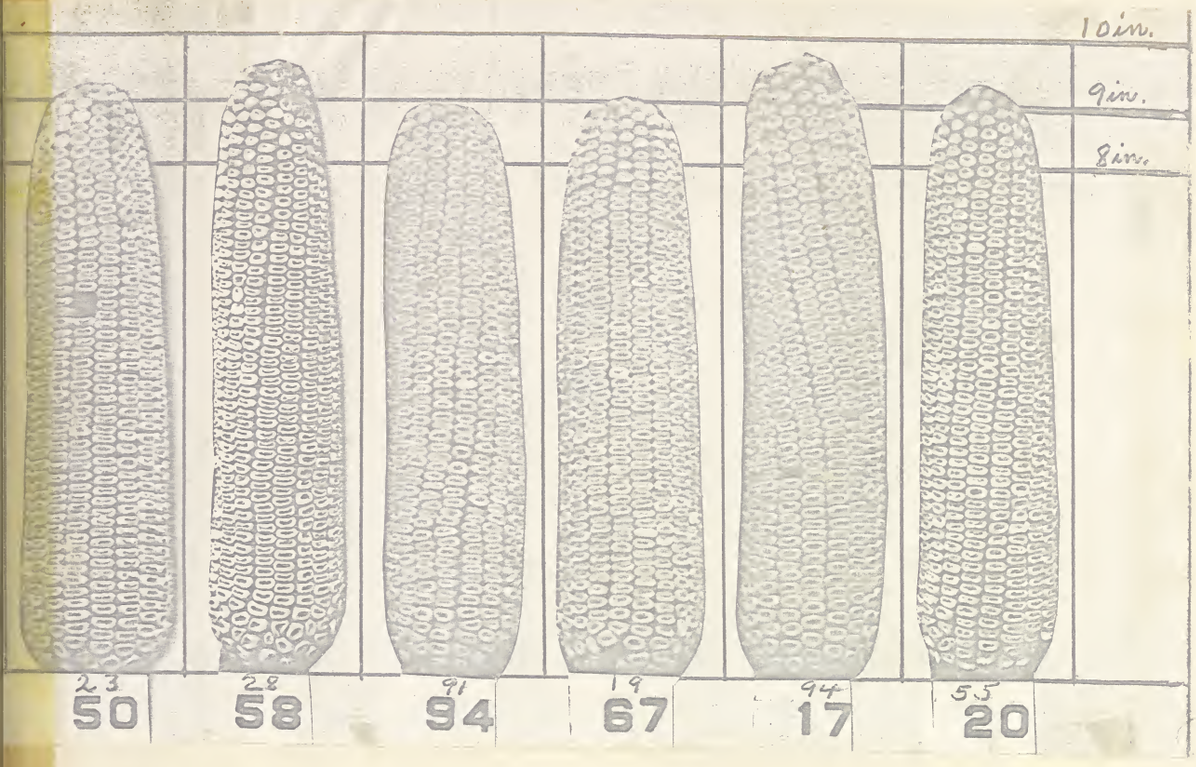
REPRESENTATIVE EARS OF 12 SAMPLES WITH SMOOTHEST INDENTATION



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN INDENTATION



REPRESENTATIVE EARS OF 12 SAMPLES WITH ROUGHEST INDENTATION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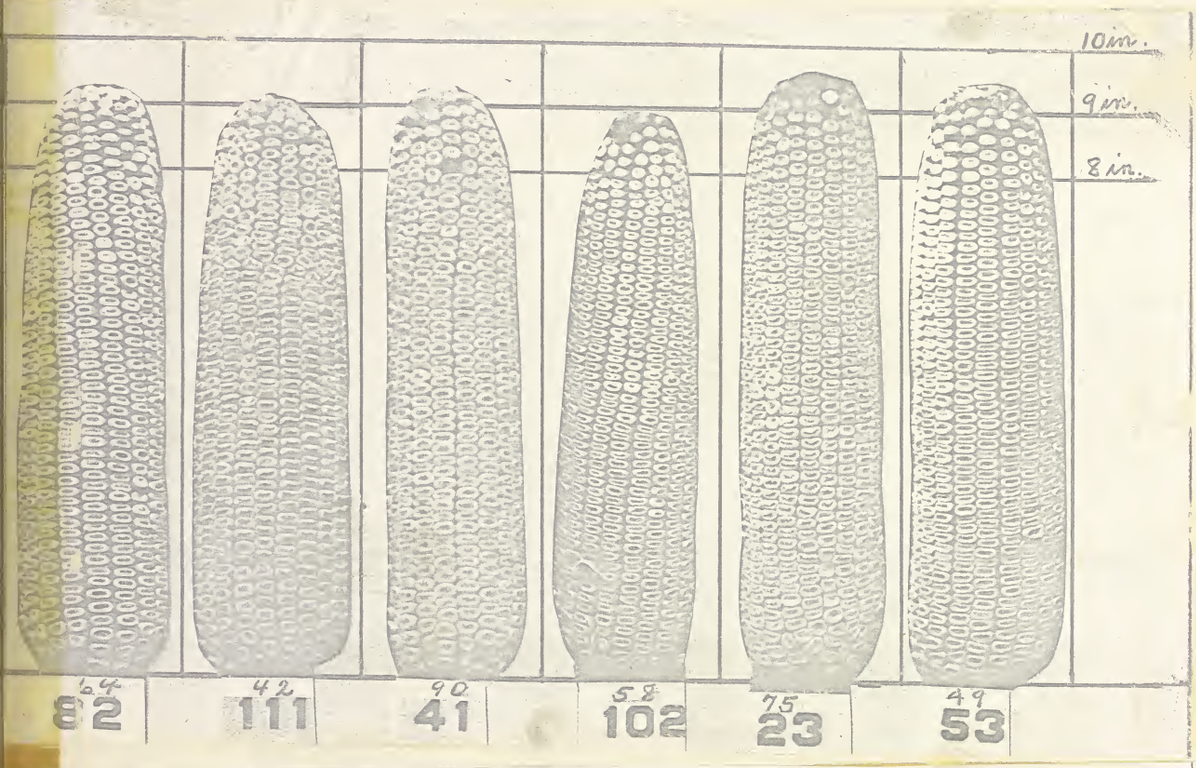
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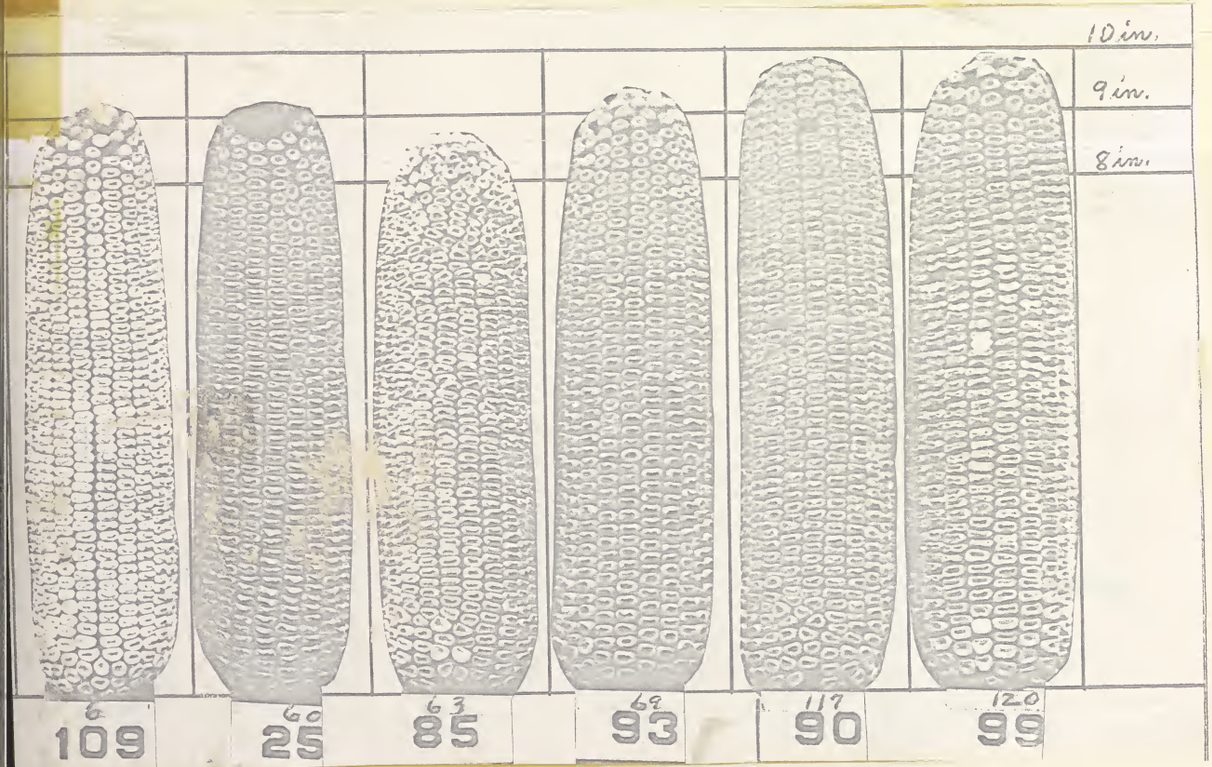
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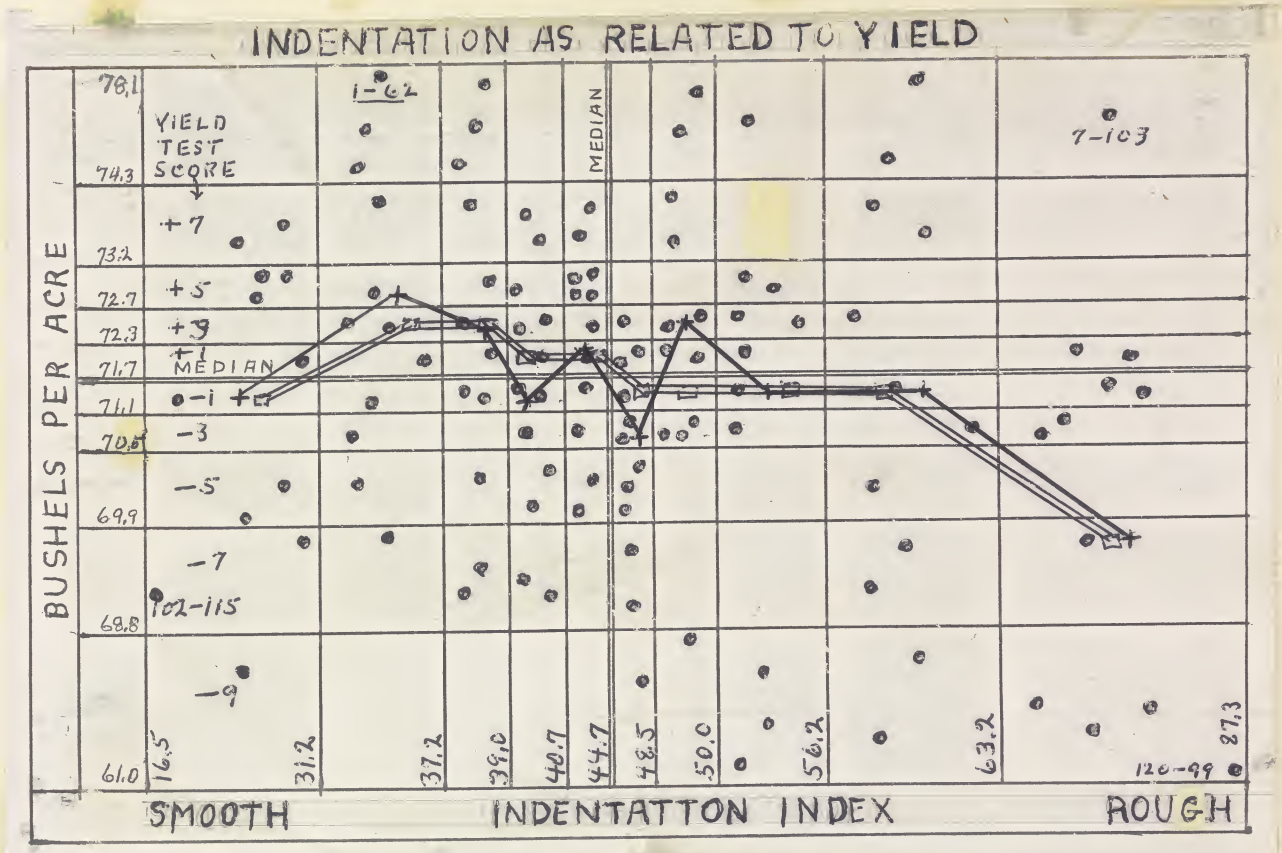


INDENTATION AS RELATED TO YIELD AND
EIGHTEEN OTHER DESCRIPTIVE ITEMS

An indentation index was calculated by a study of the shelled samples after their selection for the field test. As a result of using such shelled samples the calculations were made from only those ears that were of good germination, free or fairly free from disease and of good or fairly good kernel development. Thus more of the rougher than of the smoother ears brought in by the farmers had been eliminated. Thirty-three or thirty-four kernels of each years samples of shelled corn as prepared for planting were divided into five grades of indentation. Samples of several kernels of each of the five grades were kept constantly before the author as he graded each sample. Kernels described as rough had very pinched dent while those graded smooth were very smooth. The indentation index was calculated as follows: The number of rough kernels was multiplied by four, the number of medium-rough kernels multiplied by three, plus the number of medium kernels multiplied by two and the number with medium-smooth kernels multiplied by one. The total was divided by the total number of kernels multiplied by four and the product multiplied by 100. This gave an index of 100 to a sample all of whose kernels were rough and an index of 0 to an all-smooth sample.

The trend line on the chart above shows a definite downward trend from the medium-smooth to the rough indentation with rather abrupt downward trends for both the very smooth and the very rough samples.

Again we see the fallacy followed by most corn judges of giving undue weight to rough, deep grained corn. The owner of the lowest yielding sample, No. 120-99, which was rougher than the other rough samples, was one of the most consistant winners at state and national corn shows. See photo of an ear of his corn on page 163.

The roughness of indentation was probably the most "debated far into the night" of all of the items considered by oldtime corn judges. It was the memory of this controversy that brought to mind and led the author to add the section, "A Costly Decision of Oldtime Corn Judges". See page 209.

Degree of indentation

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol.II
Items that required field or laboratory tests																
Bushels per acre	71.4	71.8	69.7	High 78.1					Median ▲ 71.7				○		Low 61.0	122-125
Percent of good corn	90.0	89.8	88.6	High 92.7					● ▲ 89.8					○	Low 85.8	126-129
Percent of moisture	21.5	21.4	21.5	Low 17.9					▲ 21.4 ○	●					High 24.9	130-133
Percent of shelled corn	85.5	85.5	86.1	High 87.3			○		85.8		● ▲				Low 84.5	134-137
Density of shelled corn	34.7	34.3	33.2	Heavy 35.6	●			▲	34.2						Light ○ 32.4	138-141
Germination index	86.5	85.3	87.5	High 93.8					○ 87.1	●	▲				Low 64.5	142-145
Disease index	74.1	75.5	70.5	Little 90.2					75.7	▲	●	○			Much 58.3	146-149
Weight of ears	12.42	12.50	13.68	Heavy 15.07 ○					12.75		● ▲				Light 10.35	150-153
Items observed by oldtime corn judges																
Density of ears	39.64	39.28	39.08	Heavy 42.03					● Median 39.54		▲	○			Light 37.58	154-157
Kernel development	62.7	56.5	50.3	Good 78.6			●		▲ 56.4				○		Poor 35.3	158-161
Indentation index	27.4	44.6	72.8	● Smooth 16.5					▲ 44.7						Rough 87.3 ○	162-165
Length of kernels	12.93	13.34	14.37	Long 15.72 ○					13.41	▲				●	Short 12.47	166-169
Width of kernels	7.79	8.14	7.93	Wide 9.01			▲		○ 7.92		●				Narrow 7.12	170-173
Thickness of kernels	4.23	4.20	4.15	Thick 4.42				●	▲ 4.21			○			Thin 3.89	174-177
Length of ears	8.91	8.87	8.99	Long 9.67					○ 8.96	● ▲					Short 8.25	178-181
Diameter of ears	2.116	2.137	2.218	Small 2.012				●	▲ 2.137					○	Large 2.304	182-185
No. of rows of kernels	18.5	17.8	19.4	Small 14.9				▲	18.3	●				○	Large 2.09	186-189
Color of shank index	66.7	70.7	67.5	White 86.7				▲	67.7 ○	●					Dark 36.7	190-193
Condition of shank index	36.2	39.3	38.0	Smooth 58.3					▲ 38.4 ○		●				Rough 18.3	194-197
Variation index	7.5	7.4	6.6	Uniform 3.0			○		7.0		● ▲				Uneven 11.0	198-201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

LENGTH OF KERNEL

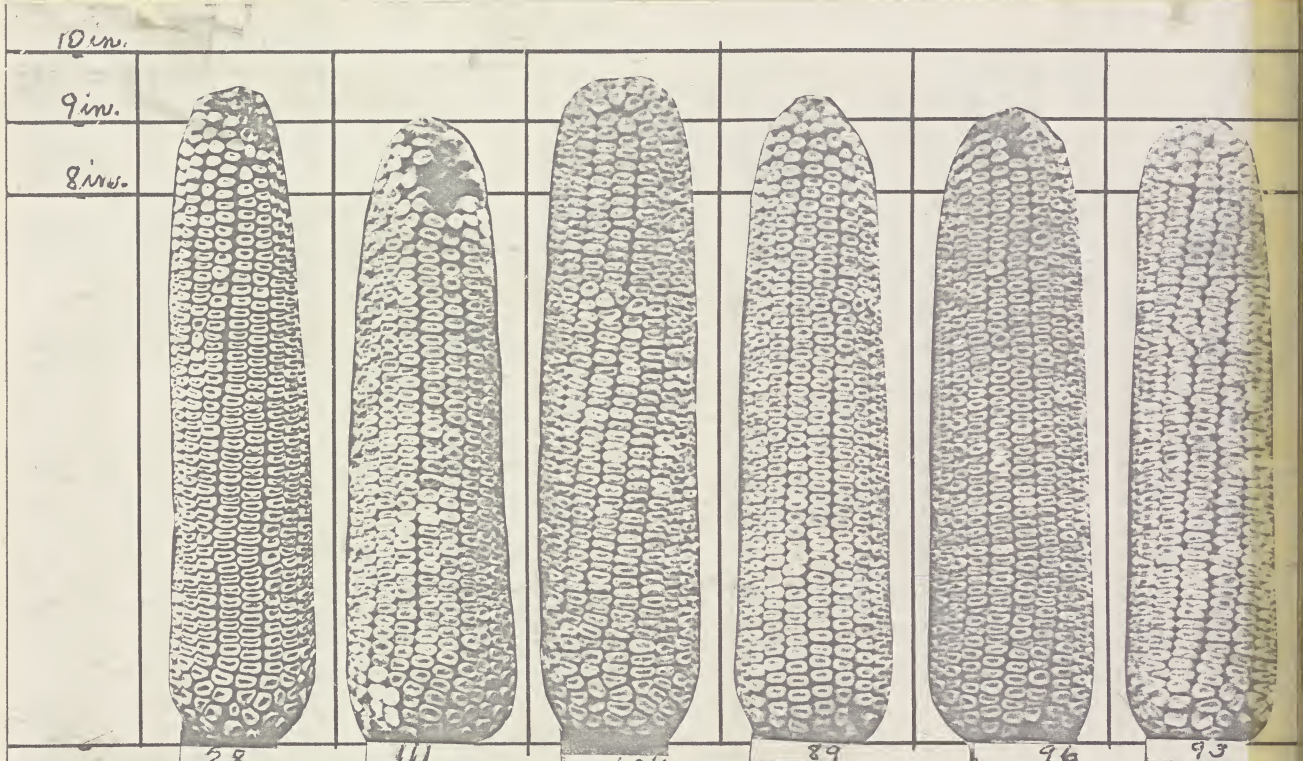
as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 168-169)

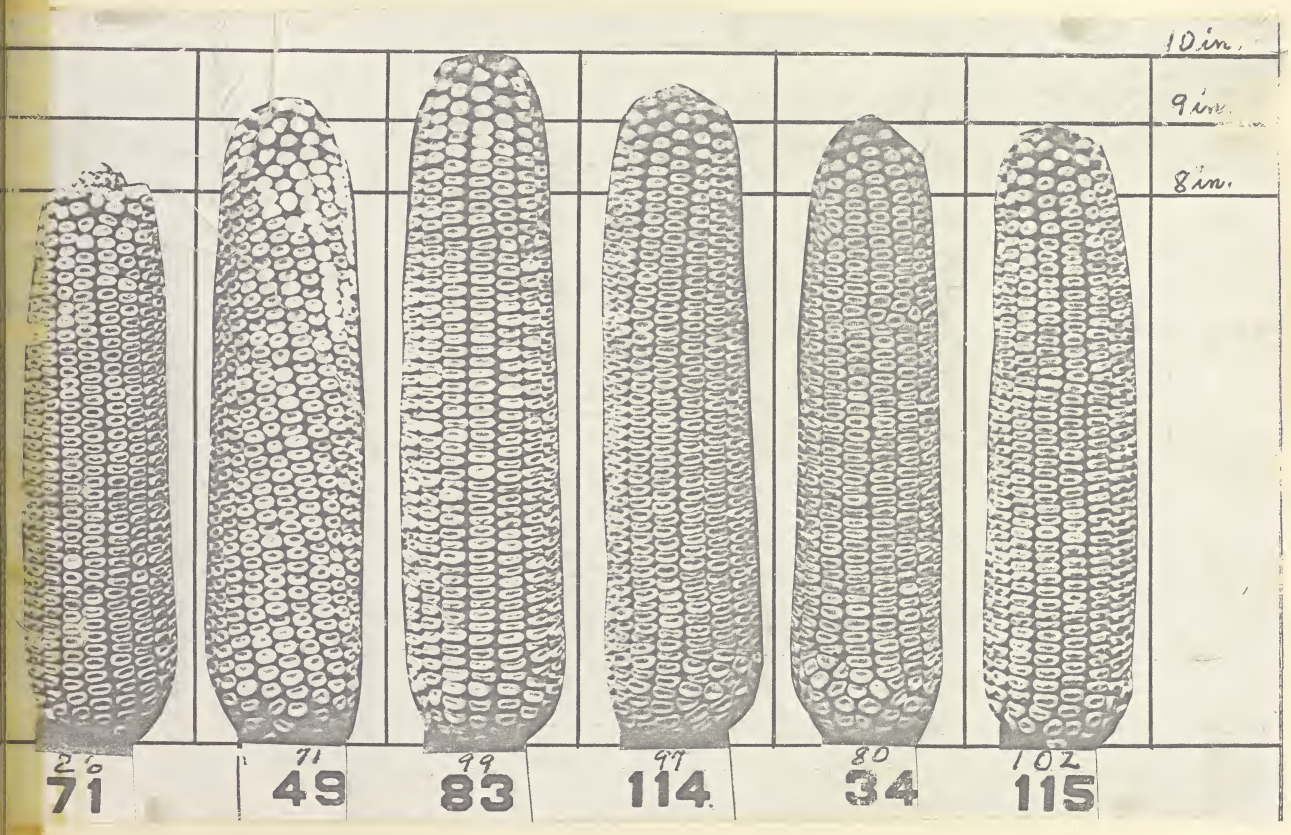
30 100 13 45 91 18

REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN LENGTH KERNELS

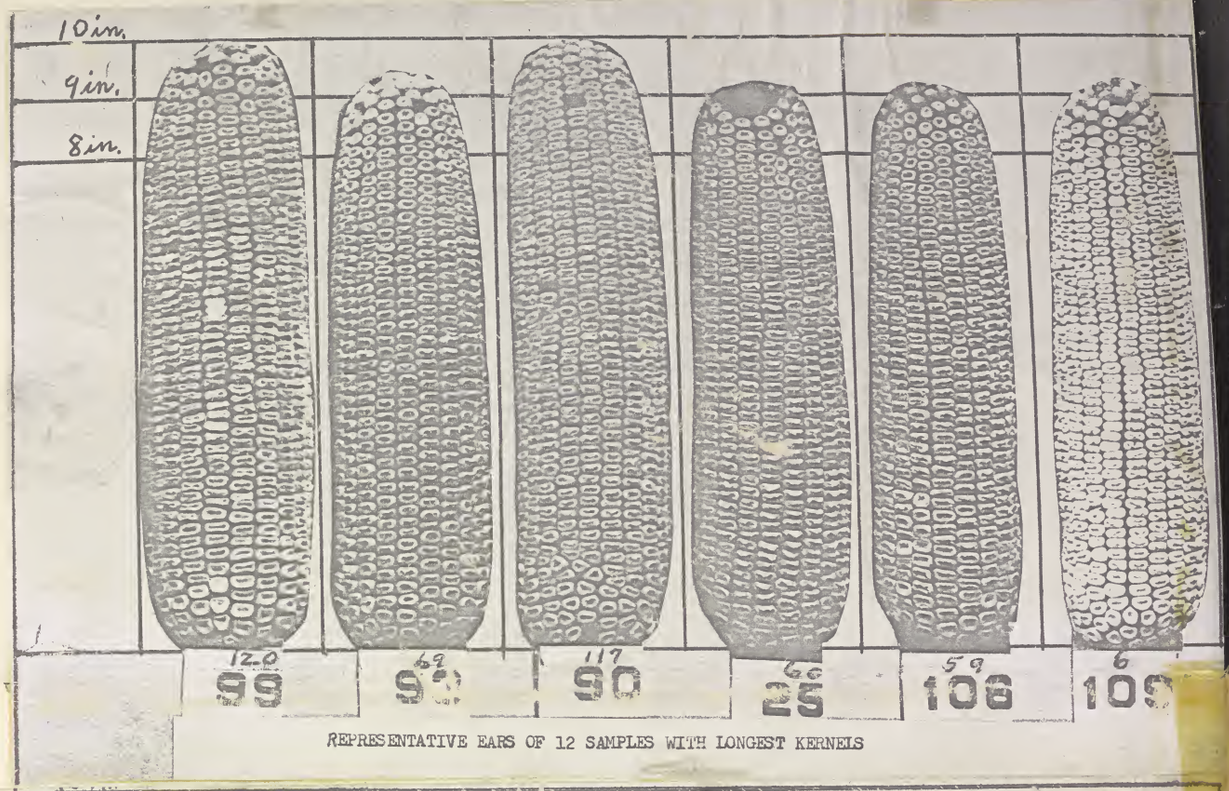


REPRESENTATIVE EARS OF 12 SAMPLES WITH SHORTEST KERNELS

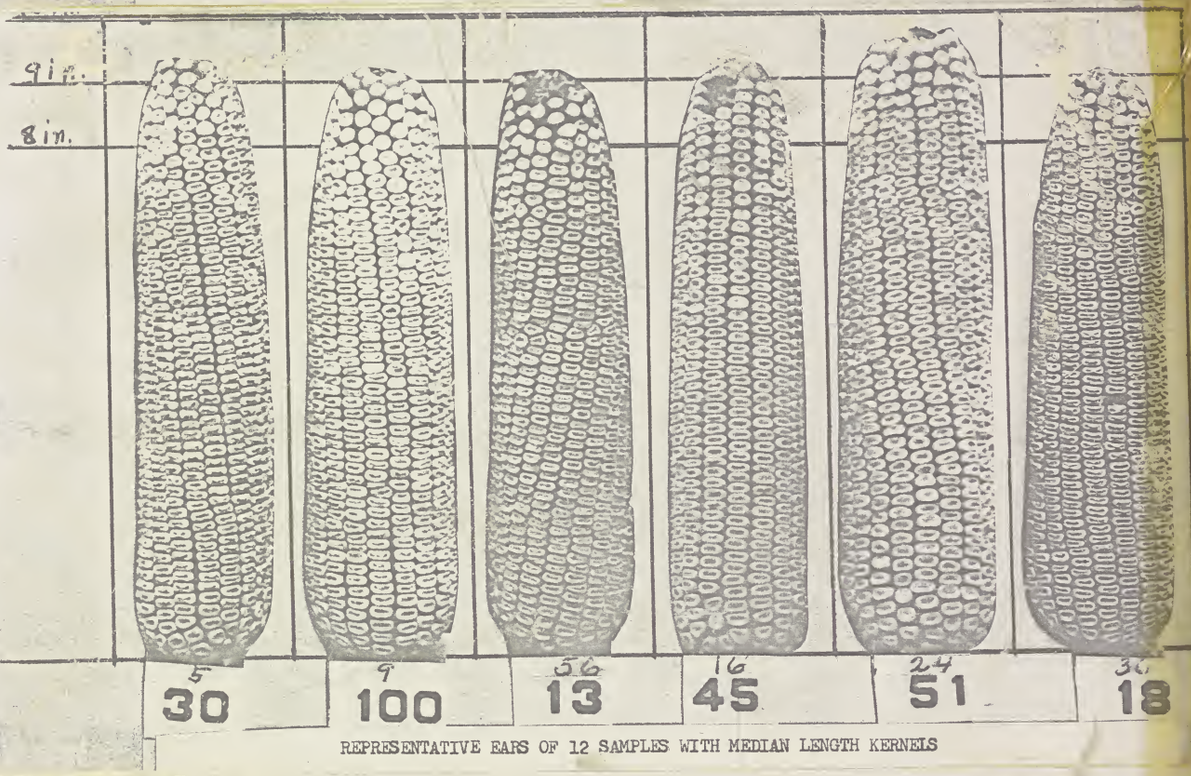
75		27		61	78
23	26	14	59	5	78



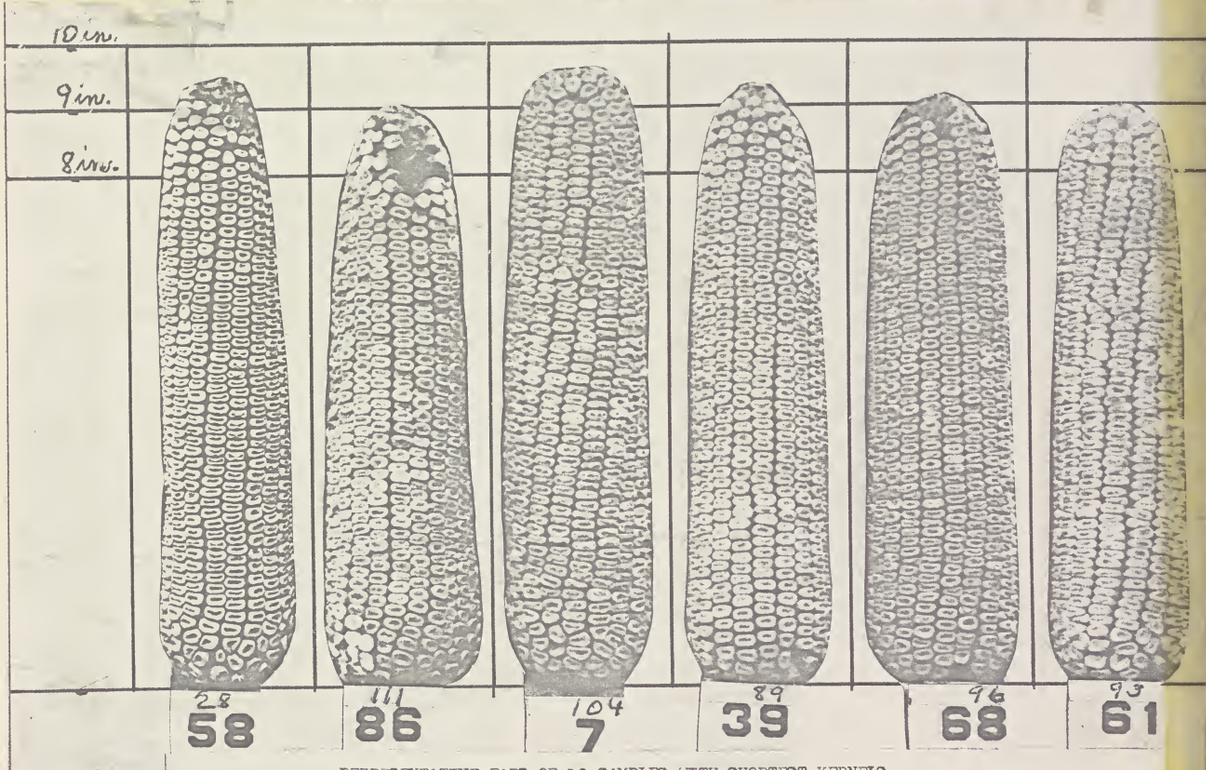
26	71	99	99	80	102
71	49	83	114	34	115



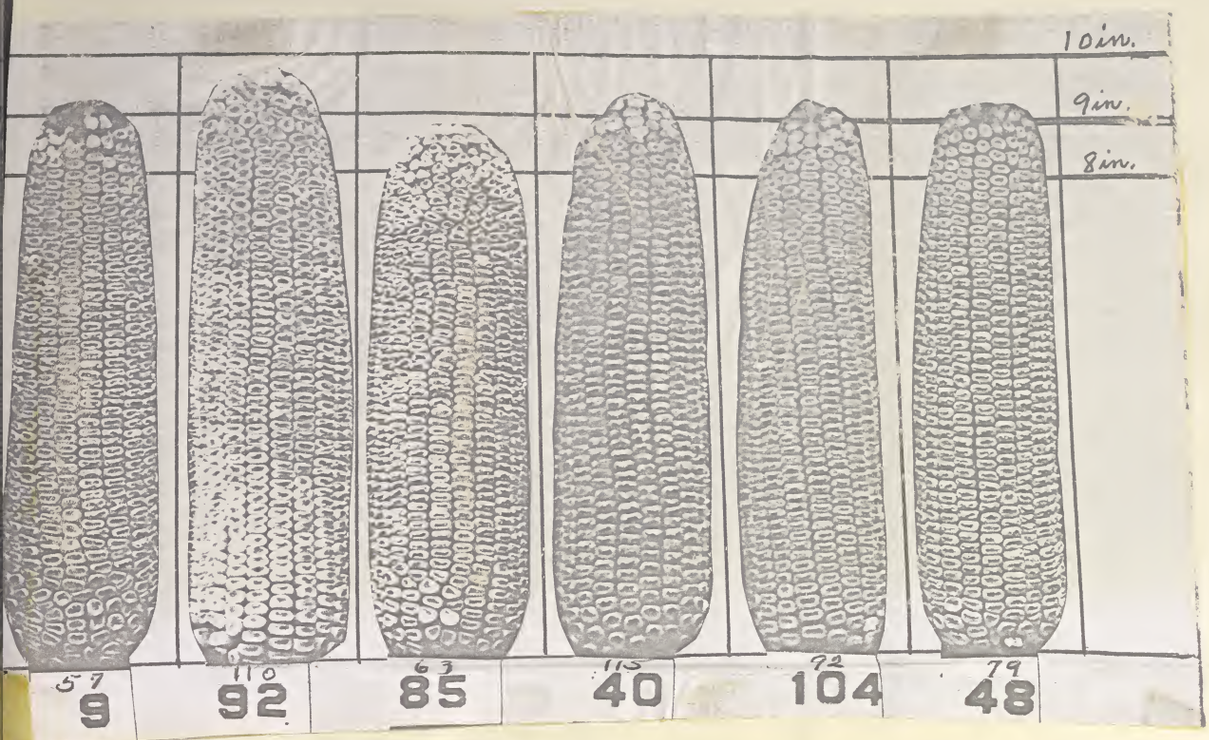
REPRESENTATIVE EARS OF 12 SAMPLES WITH LONGEST KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN LENGTH KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH SHORTEST KERNELS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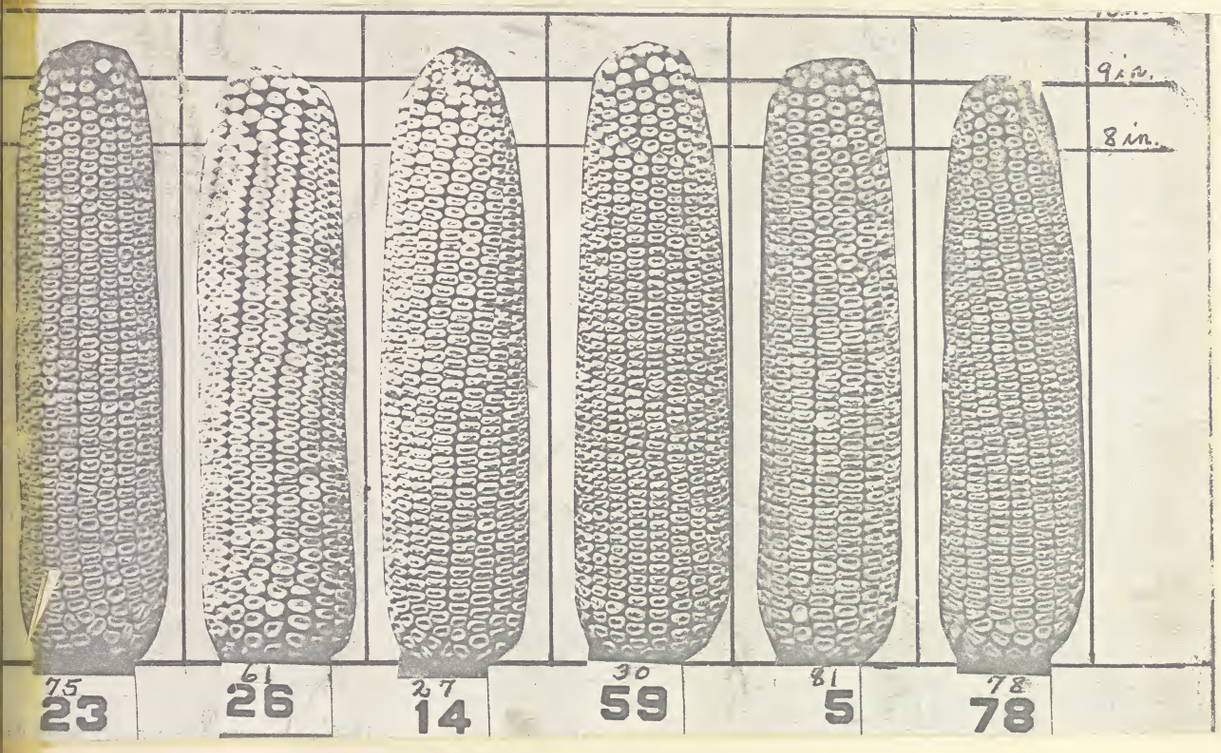
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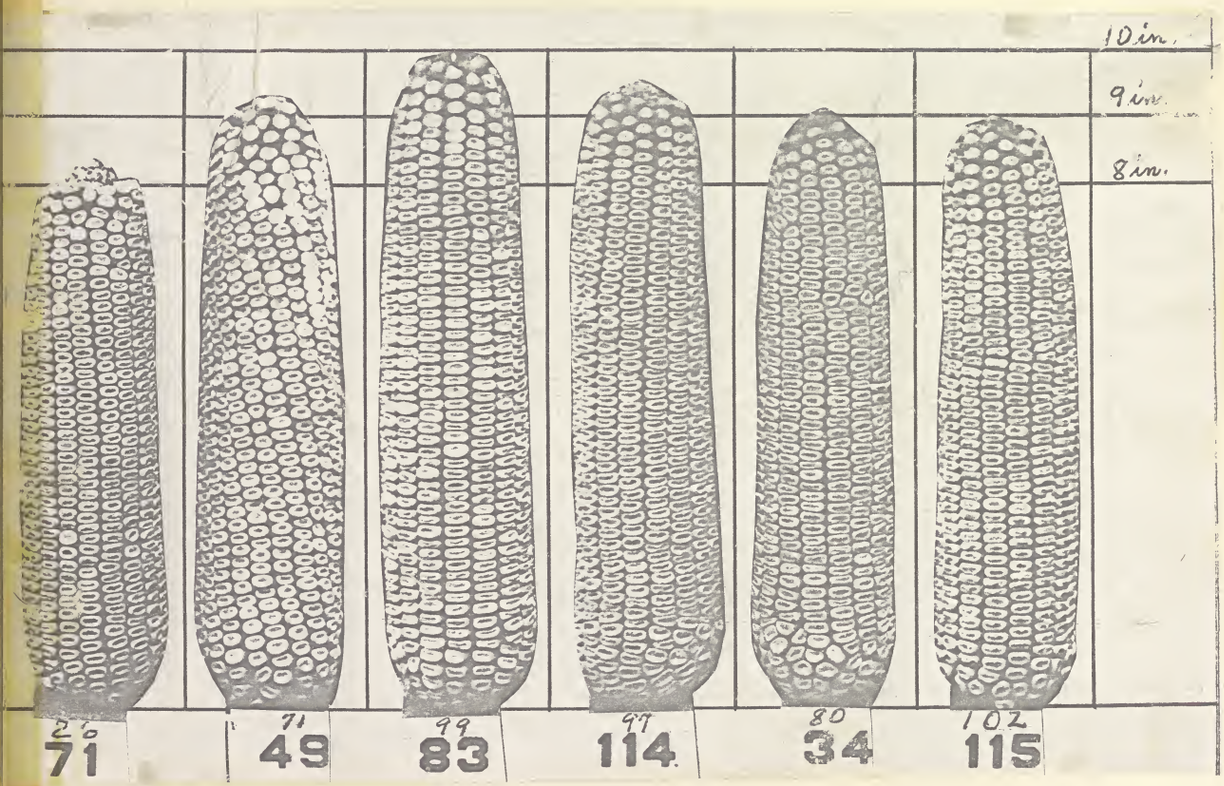
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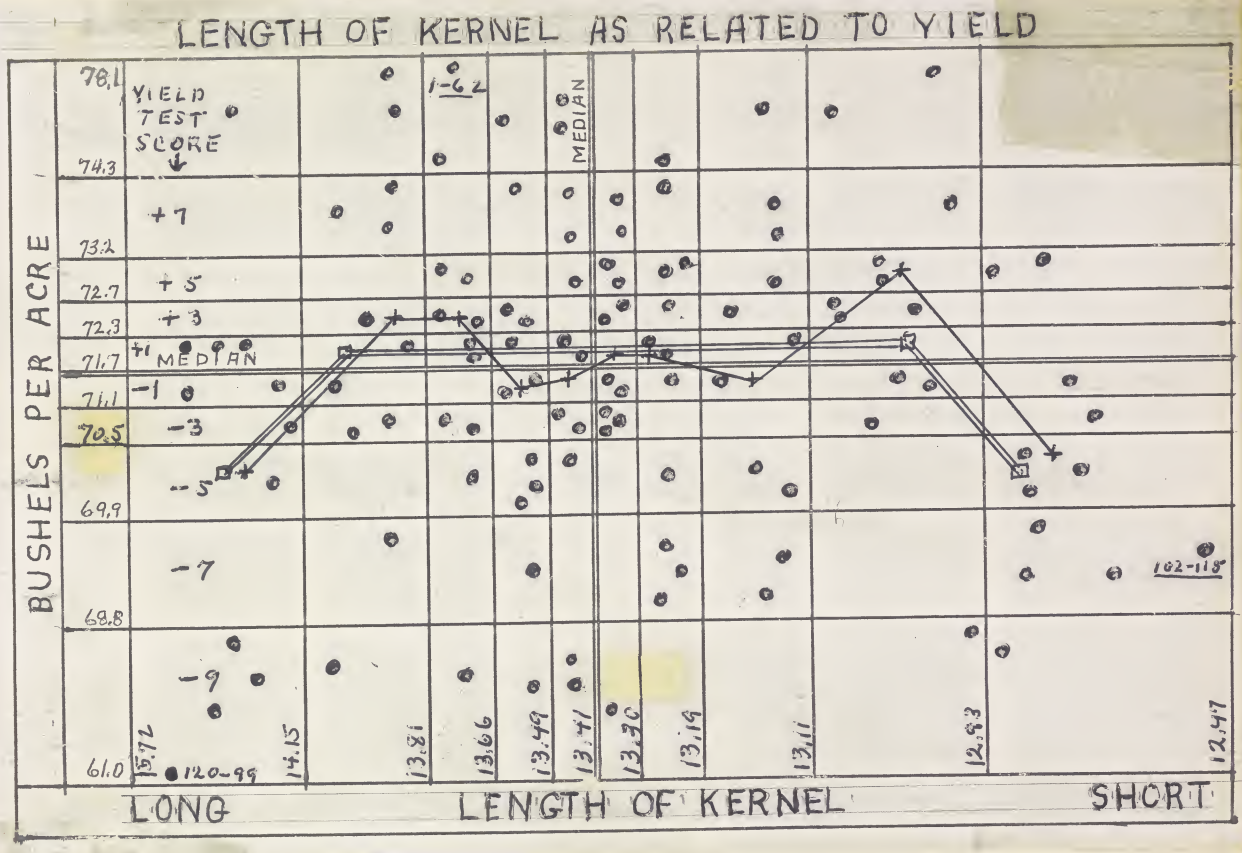


LENGTH OF KERNEL AS RELATED TO YIELD AND
TO EIGHTEEN OTHER DESCRIPTIOVE ITEMS

The length of kernel was determined by a study of the shelled seed as prepared for planting. Thirty-three or thirty-four kernels were laid end to end. The length of the row of kernels was measured in millimeters and divided by the number of kernels to get the length of kernels.

The yield trend line sloped slightly downward from medium-long to medium-short kernels but dropped sharply for very long or very short kernels.

The close resemblance of the yield trend line for length of kernel above and for indentation, page 164, may well be noted. The reader should remember that this test was conducted in the middle of the cornbelt. Rough, deepgrained strains are more suitable for the southern zones and smooth, shorter grained strains are earlier maturing and better suited for the northern zones.

The rough, deep grained strains were late in maturing and produced a resulting relatively poor quality of crop. See page 169. The smooth, shallow grained strains were earlier and produced corn of better quality. However they produced smaller ears and were objected to by hand huskers. The rough, deep grained strains showed more disease in the germination tests than the smooth shorter grained samples.

The yield test was conducted on two of the best soil-improved farms in Woodford County. The author is confident that samples No's 4-75 and 7-103, two of the twelve high yielding samples, which were relatively early, small eared strains, would have yielded relatively more if they had been planted at thicker rates than the others.

It is of interst to recall here that He nry A, Wallace who made inbreds from several of the high yielding strains wrote in a letter to the author, "I got some of my best inbreds from the J.D.Smith corn" which was No.7-103.

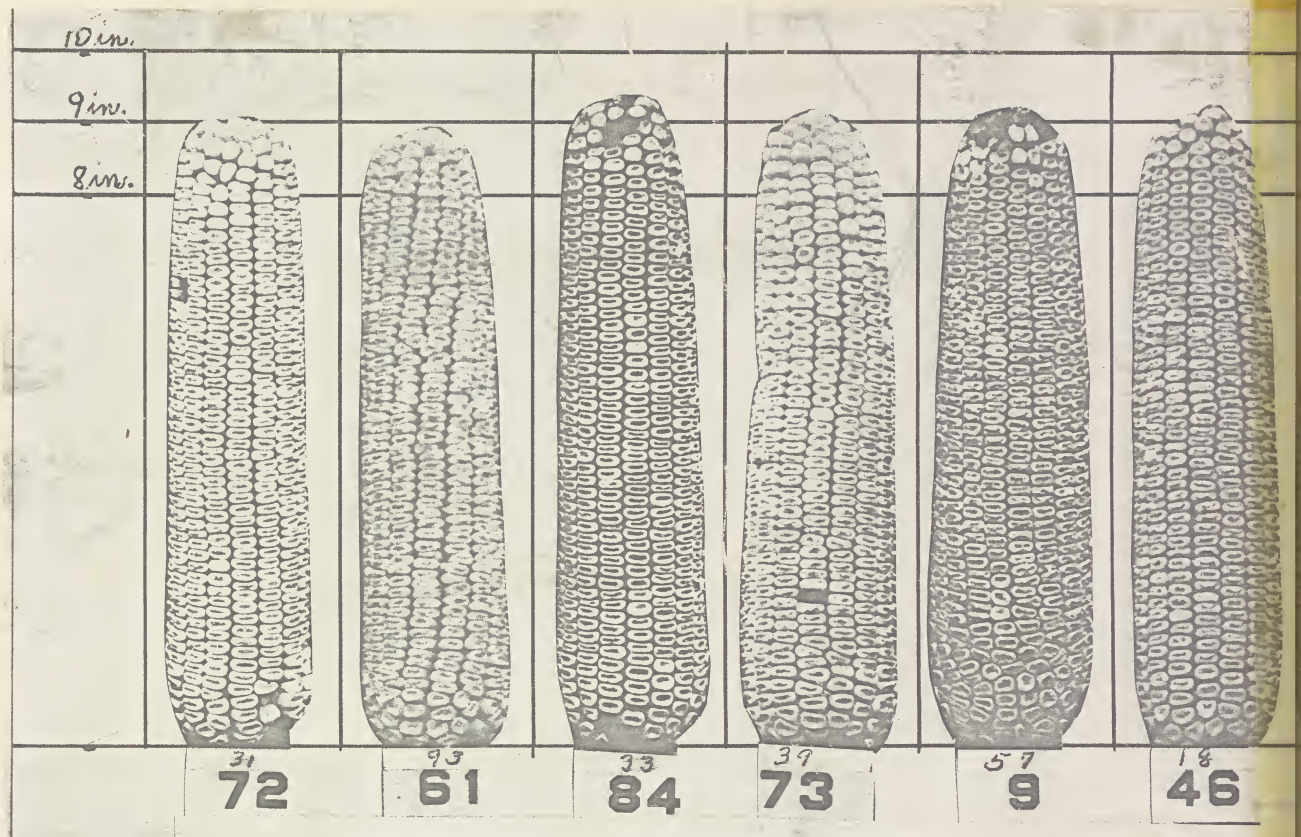
Length of kernels

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5 ‖ 6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests															
Bushels per acre	70.0	72.6	70.3	High 78.1				▲	Median 71.7		● ○			Low 61.0	122–125
Percent of good corn	88.8	89.6	90.1	High 92.7					○ 89.8 ▲		●			Low 85.8	126–129
Percent of moisture	22.1	21.6	20.9	Low 17.9				○	21.4 ▲	●				High 24.9	130–133
Percent of shelled corn	86.1	85.7	85.2	High 87.3			●		85.8 ▲				○	Low 84.5	134–137
Density of shelled corn	33.1	34.1	34.5	Heavy 35.6			○		34.2 ▲					● Light 32.4	138–141
Germination index	86.6	85.1	85.2	High 93.8					87.1 ●	▲ ○				Low 64.5	142–145
Disease index	69.3	77.2	75.9	Little 90.2				▲	○ 75.7				●	Much 58.3	146–149
Weight of ears	14.21	12.74	12.03	● Heavy 15.07					12.75 ▲			○		Light 10.35	150–153
Items observed by oldtime corn judges															
Density of ears	39.11	39.52	39.51	Heavy 42.03					Median 39.54 ▲ ○		●			Light 37.58	154–157
Kernel development	54.2	56.6	60.3	Good 78.6				○	▲ 56.4	●				Poor 38.3	158–161
Indentation index	69.5	44.0	31.9	Smooth 16.5	○				▲ 44.7					● Rough 87.3	162–165
Length of kernels	14.50	13.41	12.79	● Long 15.72					▲ 13.41					Short 12.47 ○	166–169
Width of kernels	7.88	8.66	7.94	Wide 9.01				▲	○ 7.92 ●					Narrow 7.12	170–173
Thickness of kernels	4.21	4.21	4.23	Thick 4.42				○	● ▲ 4.21					Thin 3.89	174–177
Length of ears	9.15	8.99	8.85	Long 9.67			●		▲ 8.96					○ Short 8.25	178–181
Diameter of ears	2.248	2.137	2.092	Small 2.012	○				▲ 2.137					● Large 2.304	182–185
No. of rows of kernels	19.4	18.1	17.9	Small 14.9				▲ ○	18.3				●	Large 2.09	186–189
Color of shank index	66.2	67.7	65.7	White 86.7					▲ 67.7 ● ○					Dark 36.7	190–193
Condition of shank index	38.7	43.4	36.1	Smooth 58.3				▲	● 38.4	○				Rough 18.3	194–197
Variation index	6.4	7.3	8.0	Uniform 3.0			●		7.0	▲		○		Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



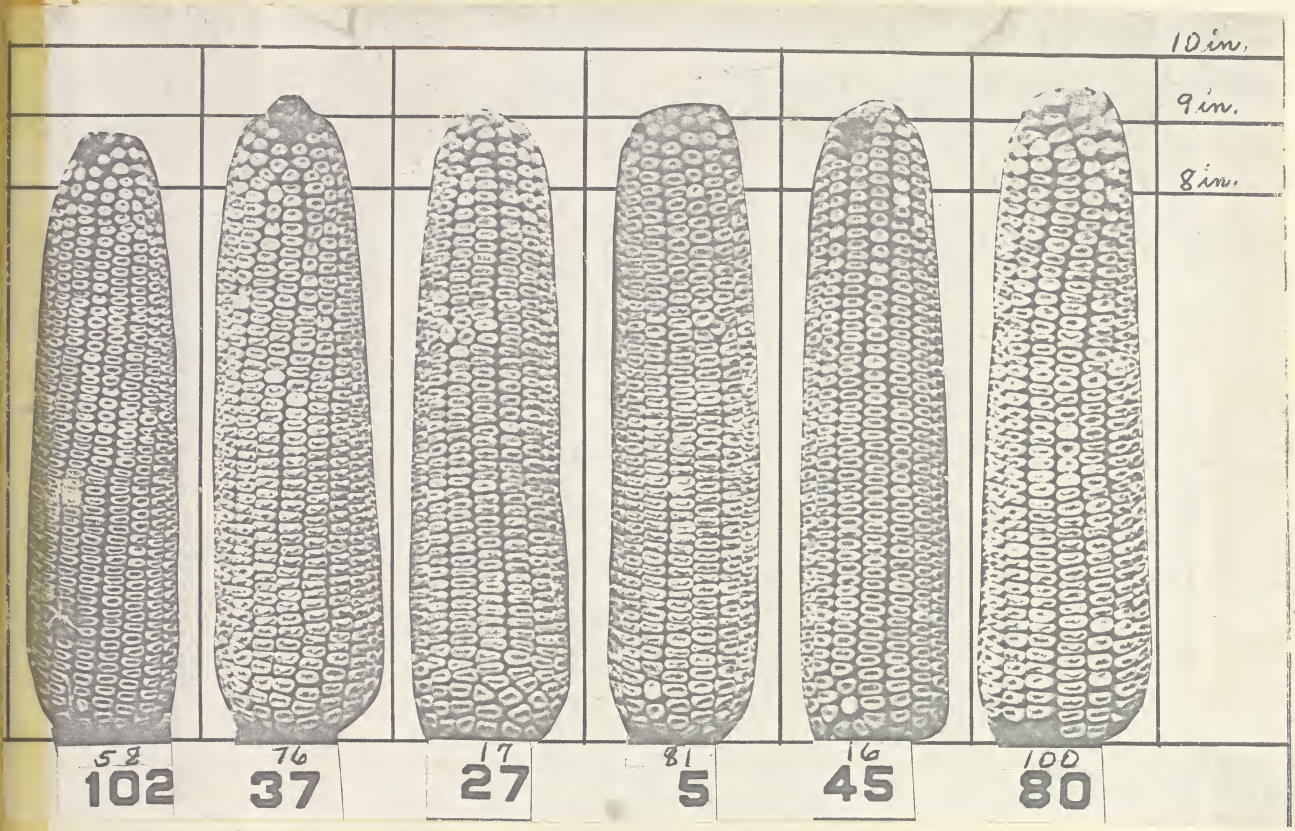
REPRESENTATIVE EARS OF 12 SAMPLES WITH WIDEST KERNELS

WIDTH OF KERNEL

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 172-173)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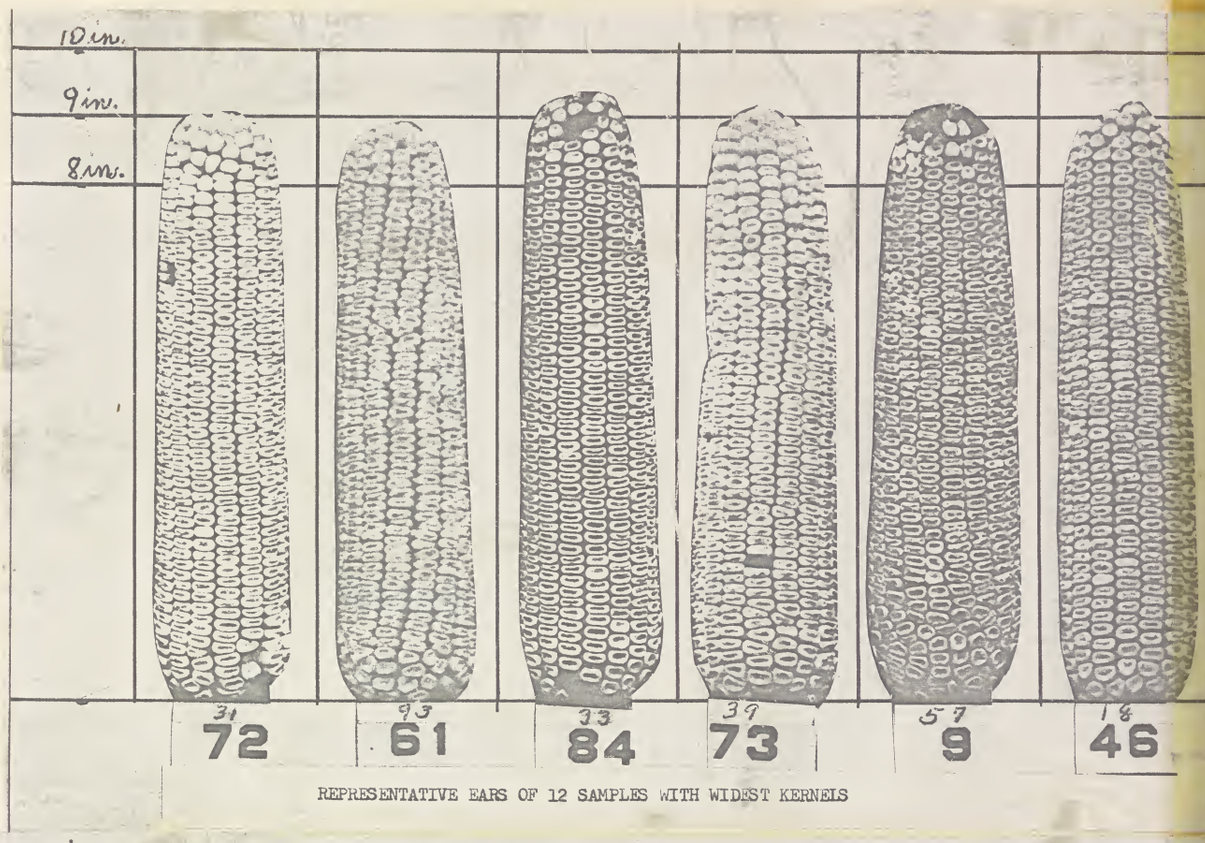
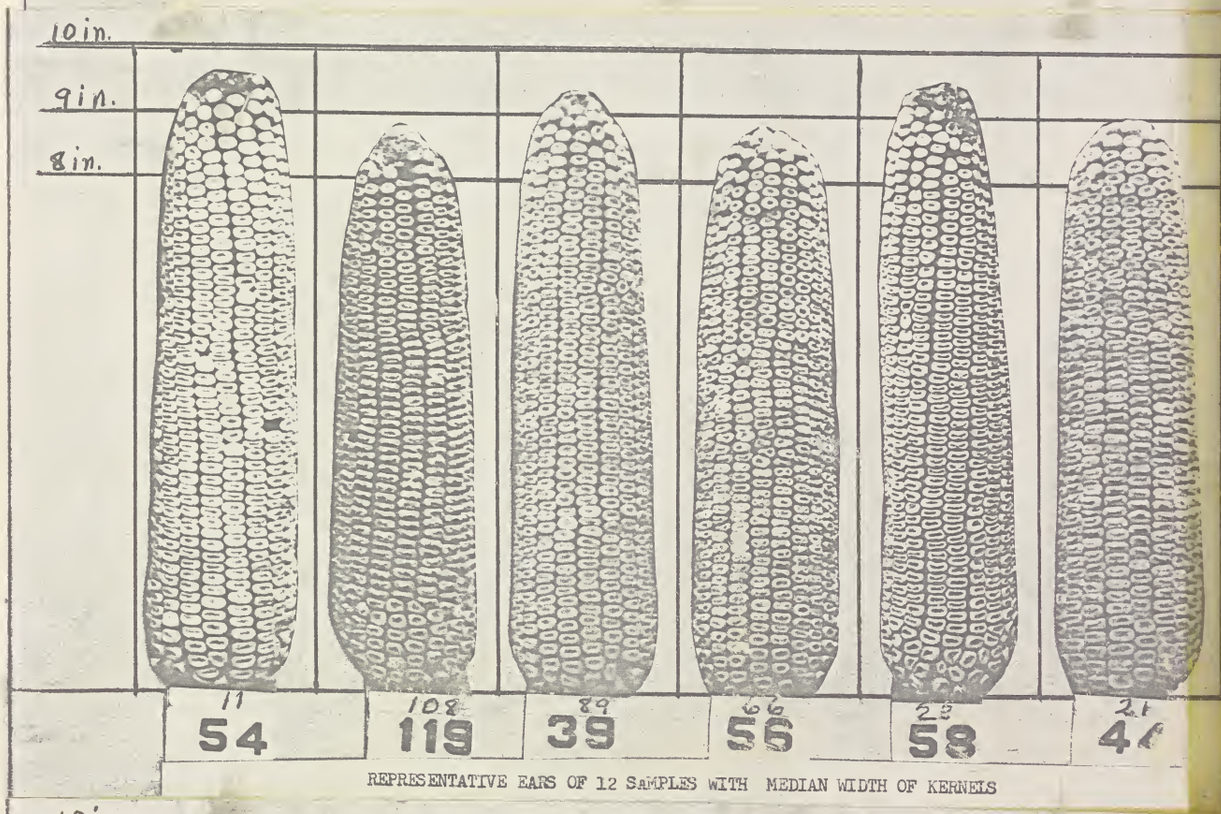
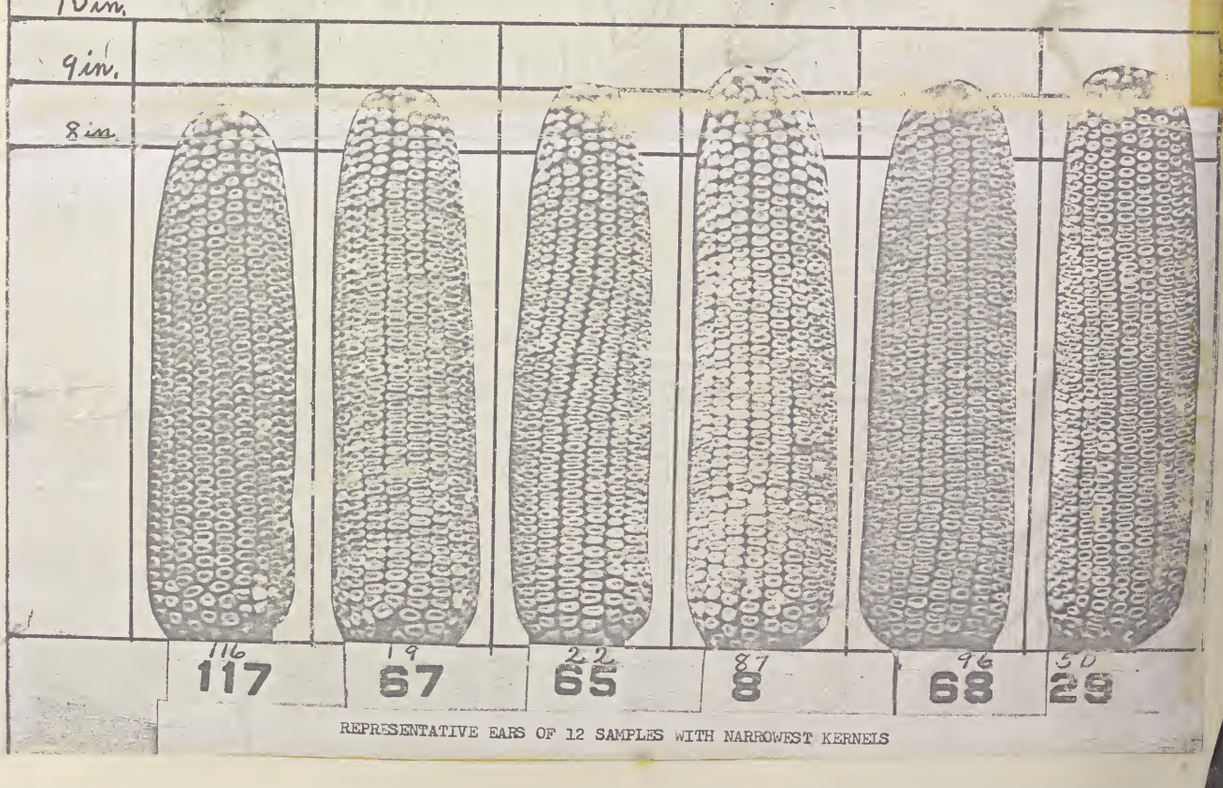


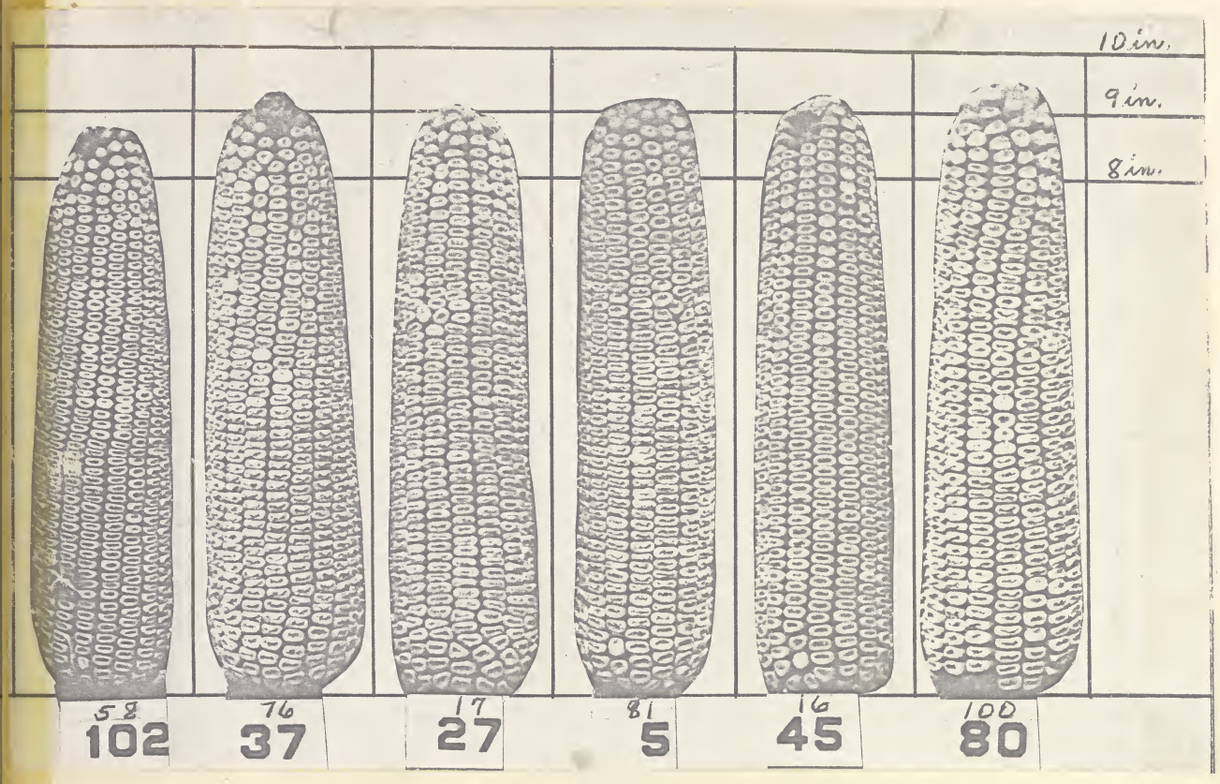
REPRESENTATIVE EARS OF 12 SAMPLES WITH WIDEST KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN WIDTH OF KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH NARROWEST KERNELS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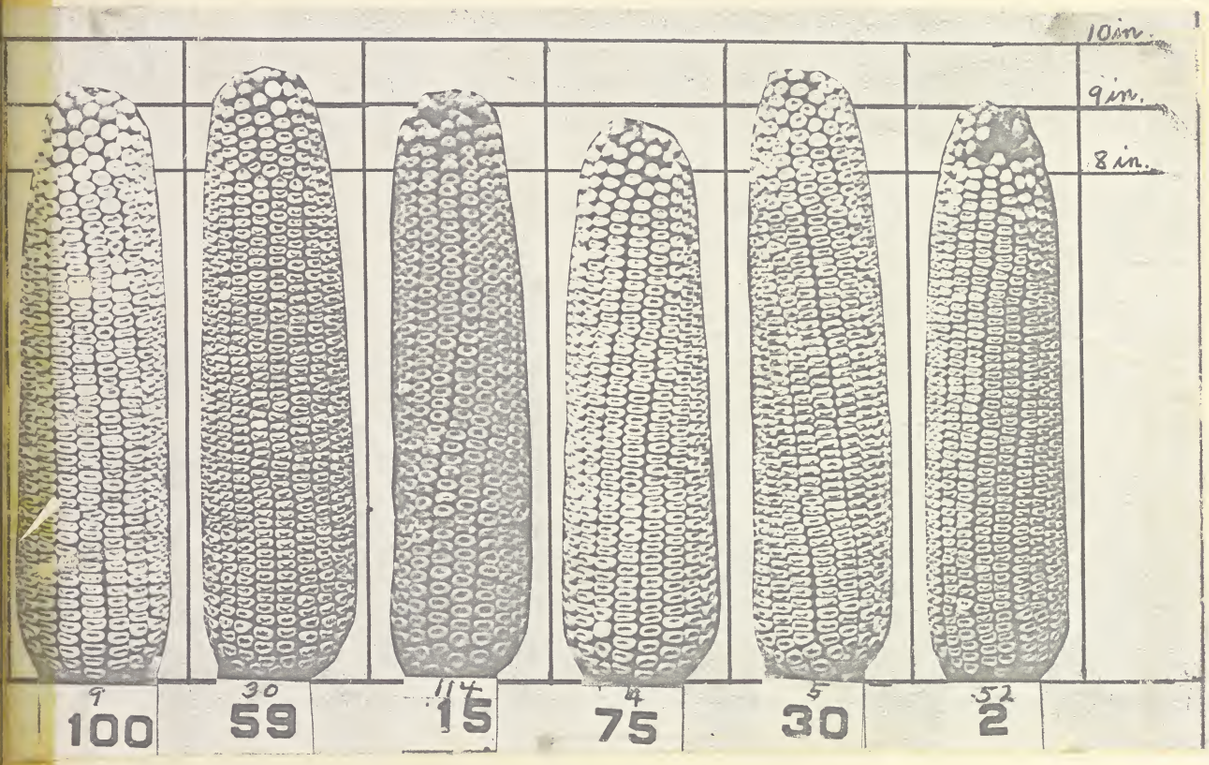
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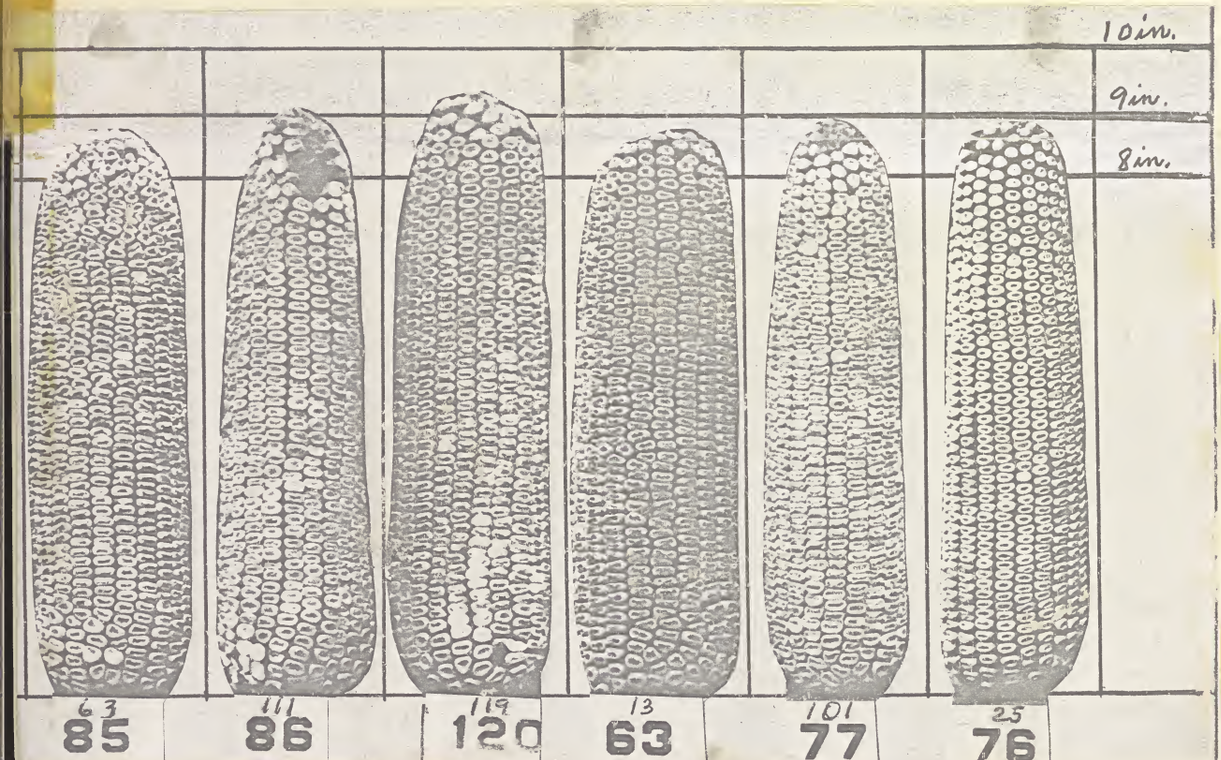
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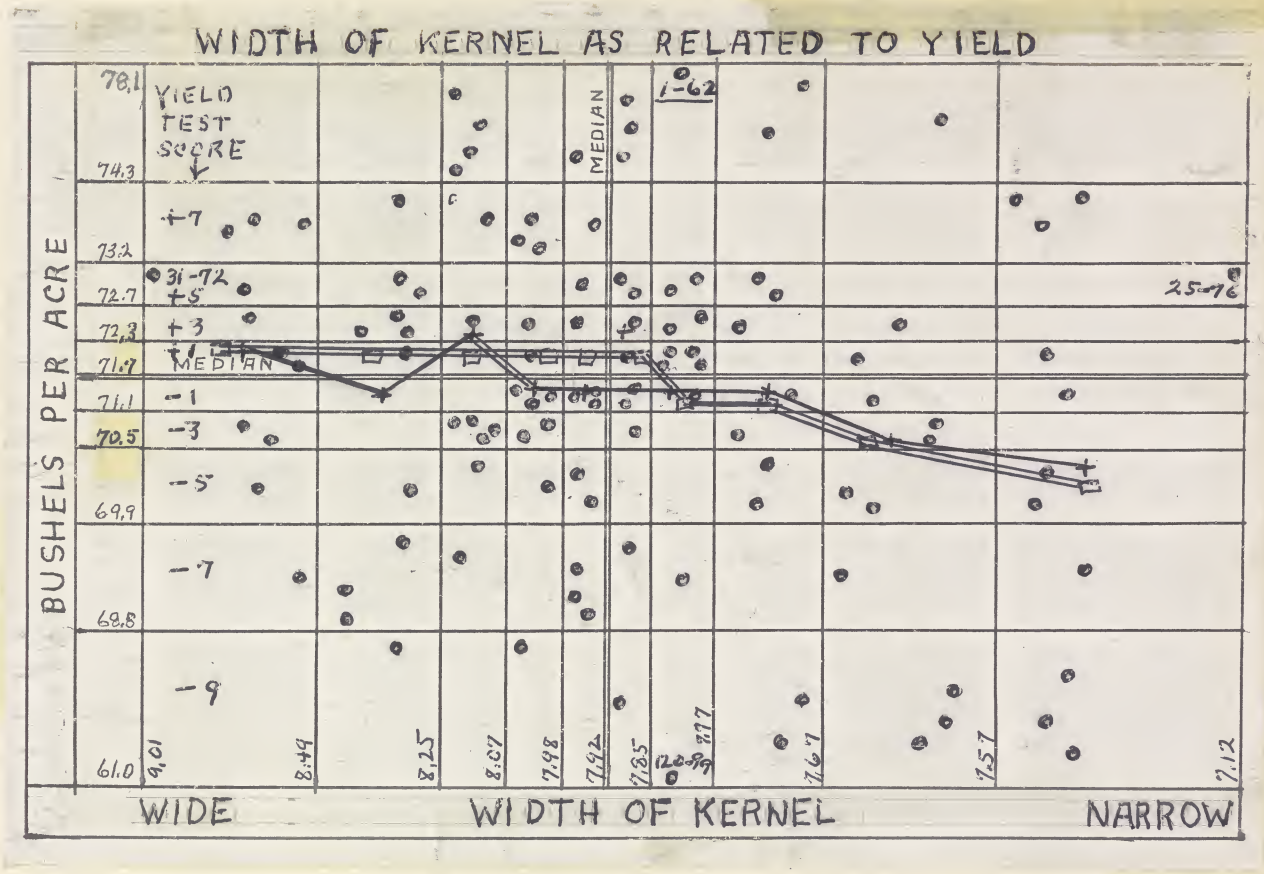


WIDTH OF KERNEL AS RELATED TO YIELD
AND EIGHTEEN OTHER DESCRIPTIVE ITEMS

The width of kernel was determined by a study of the shelled seed as prepared for planting. Thirty-three or thirty-four kernels were laid side by side with their edges touching. The length of the row of kernels was measured in millimeters and divided by the number of kernels to get the average width of kernels. As with all descriptive items the measure used in this study was the average of the measures of all three years of the test.

The yield trend line as shown above varied only a little from wide to medium narrow kernels and then dropped appreciatively for the narrowest kernels.

Eleven of the twelve high yielding samples had medium-wide kernels and ten of the twelve low yielding samples had medium to narrow kernels.

It is interesting to note that the highest yielding sample, No, 1-62, and the lowest, No. 120-99, had the same width of kernel. Also, the sample with the widest kernel, No. 31-72, and the sample with the narrowest kernels, No. 25-76, had almost the same yield per acre.

It is also of interest to this oldtime corn judge to see on page 173 that both the twelve wide-kernel and the twelve medium-wide kernels were all in decil groups 1 to 6 in all of the other eleven descriptive items and that the twelve narrow kernelled samples were in decil groups 5 to 9 in all descriptive items. The nearest approach to this relation was in the variation in number of rows of kernels and indentation as shown on page 201.

Width of kernel

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	72.0	72.5	70.9	High 78.1				▲	Median ● 71.7	○					Low 61.0	122–125
Percent of good corn	90.2	89.9	88.7	High 92.7				●	▲ 89.8				○		Low 85.8	126–129
Percent of moisture	21.5	20.5	21.6	Low 17.9			▲		● 21.4 ○						High 24.9	130–133
Percent of shelled corn	85.4	85.7	85.7	High 87.3					▲ 85.8 ○			●			Low 84.5	134–137
Density of shelled corn	34.1	34.6	34.3	Heavy 35.6			▲	○	● 34.2						Light 32.4	138–141
Germination index	84.4	86.3	88.0	High 93.8				○	▲ 87.1			●			Low 64.5	142–145
Disease index	73.8	77.6	73.1	Little 90.2				▲	75.7	●	○				Much 58.3	146–149
Weight of ears	12.71	12.39	12.75	Heavy 15.07					○ 12.75	●	▲				Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	39.37	40.28	39.53	Heavy 42.03			▲		Median ● 39.54 ○						Light 37.58	154–157
Kernel development	59.3	60.1	56.5	Good 78.6				● ▲	○ 56.4						Poor 38.3	158–161
Indentation index	46.1	42.8	45.5	Smooth 16.5					▲ 44.7 ○	●					Rough 87.3	162–165
Length of kernels	13.50	13.30	13.40	Long 15.72				●	▲ 13.41 ○						Short 12.47	166–169
Width of kernels	8.66	7.92	7.44	● Wide 9.01					▲ 7.92						Narrow 7.12 ○	170–173
Thickness of kernels	4.18	4.18	4.08	Thick 4.42					● ▲ 4.21					○	Thin 3.89	174–177
Length of ears	9.01	8.83	8.72	Long 9.67					● ▲ 8.96				○		Short 8.25	178–181
Diameter of ears	2.136	2.105	2.169	Small 2.012			▲		● 2.137			○			Large 2.304	182–185
No. of rows of kernels	16.5	18.2	19.9	Small ● 14.9					▲ 18.3					○	Large 2.09	186–189
Color of shank index	72.4	65.9	63.5	White 86.7				●	▲ 67.7	○					Dark 36.7	190–193
Condition of shank index	39.9	42.7	36.2	Smooth 58.3				▲	● 38.4	○					Rough 18.3	194–197
Variation index	6.7	7.0	7.5	Uniform 3.0			●		▲ 7.0	○					Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

THICKNESS OF KERNEL

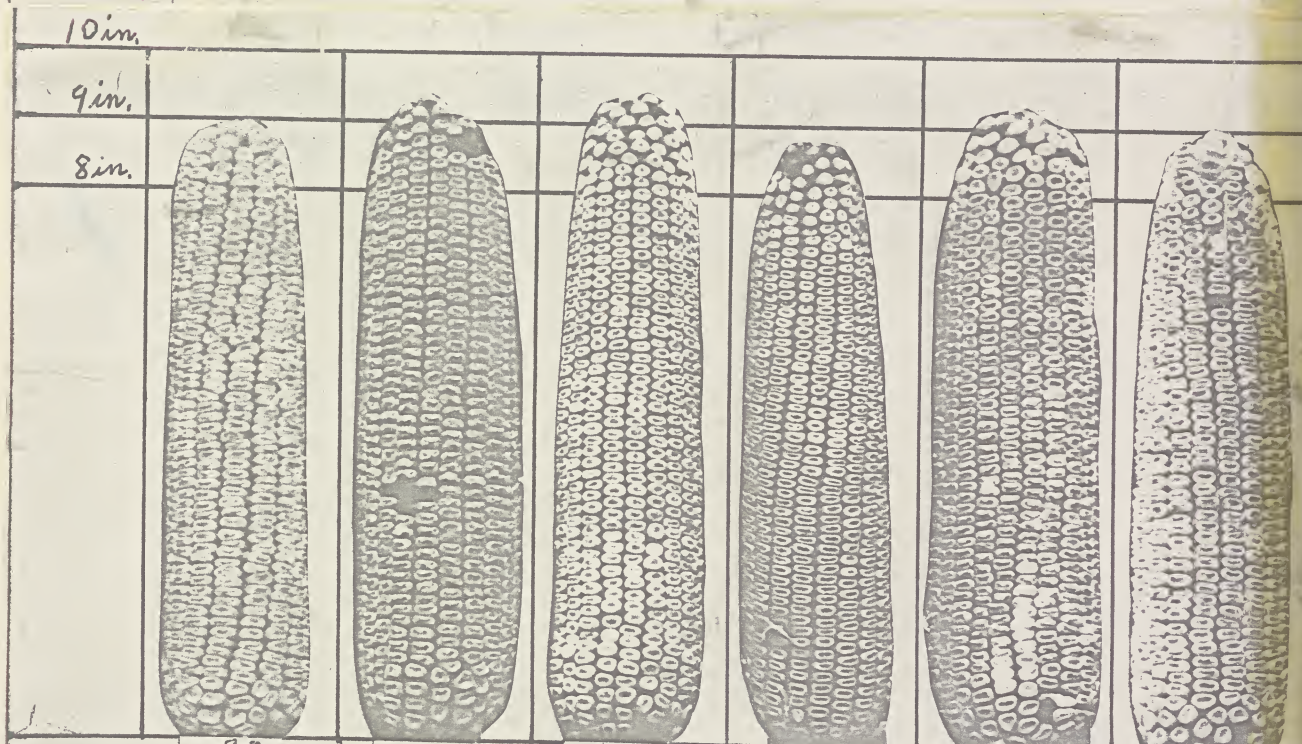
as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 176-177)

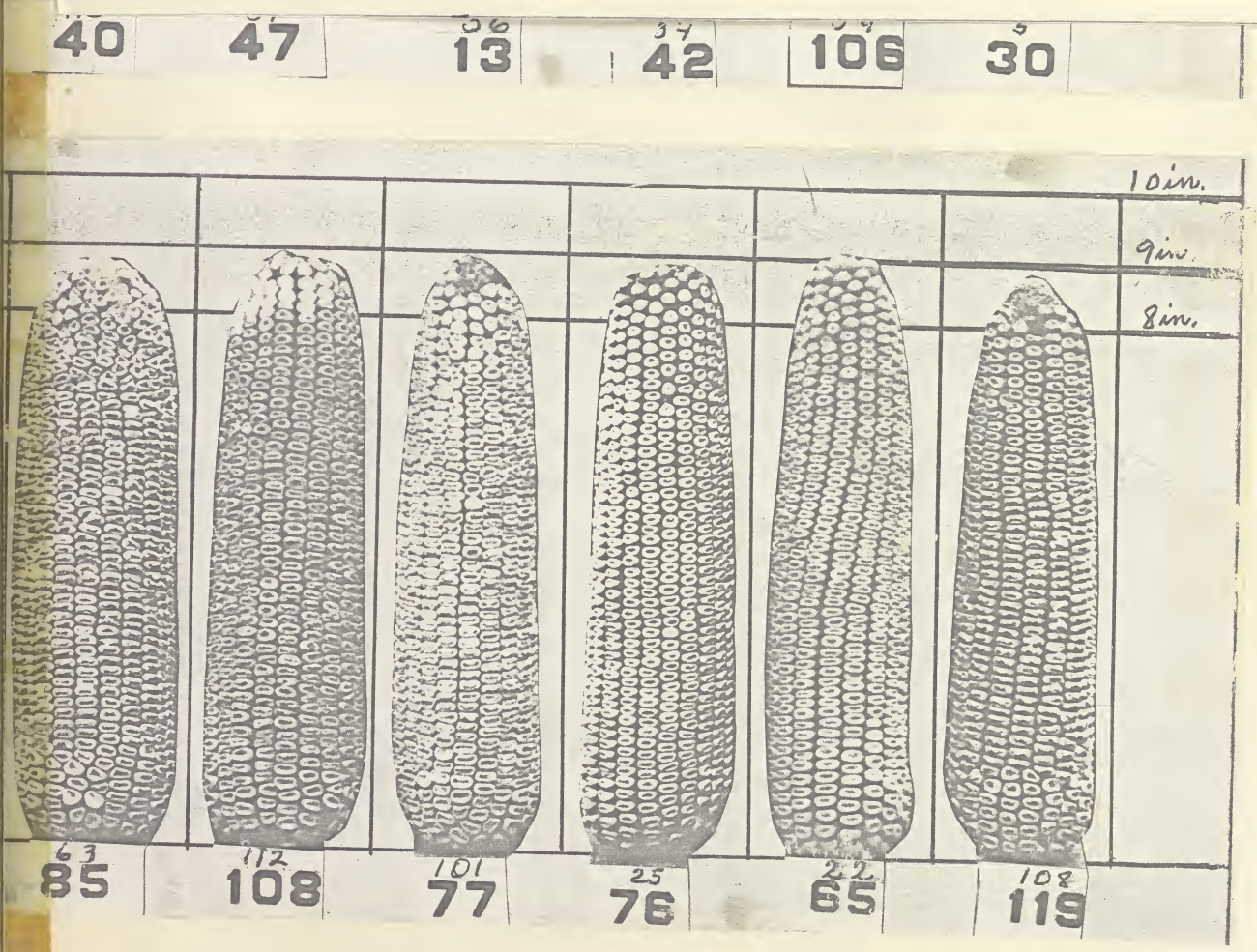
8 109 59 22 92 73

REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN THICKNESS OF KERNELS



93 61 113 35 65 21 58 102 119 120 109 33

REPRESENTATIVE EARS OF 12 SAMPLES WITH THINNEST KERNELS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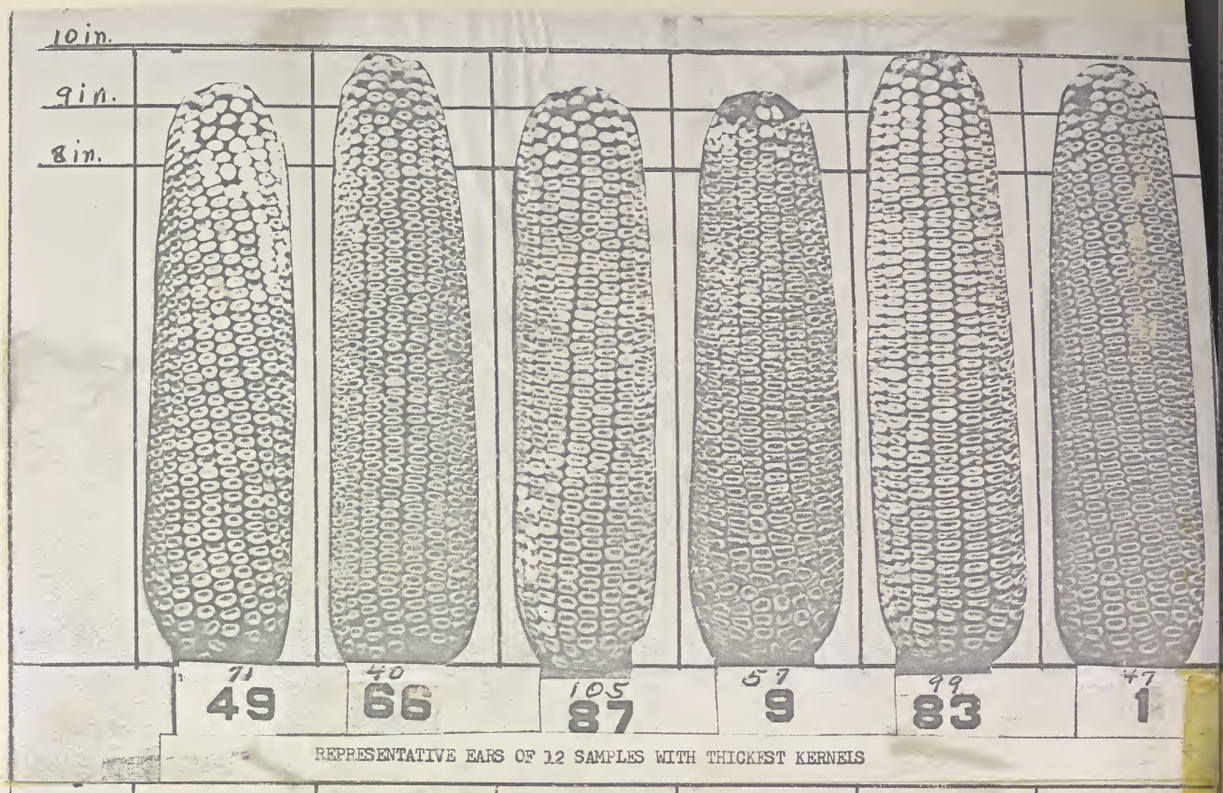
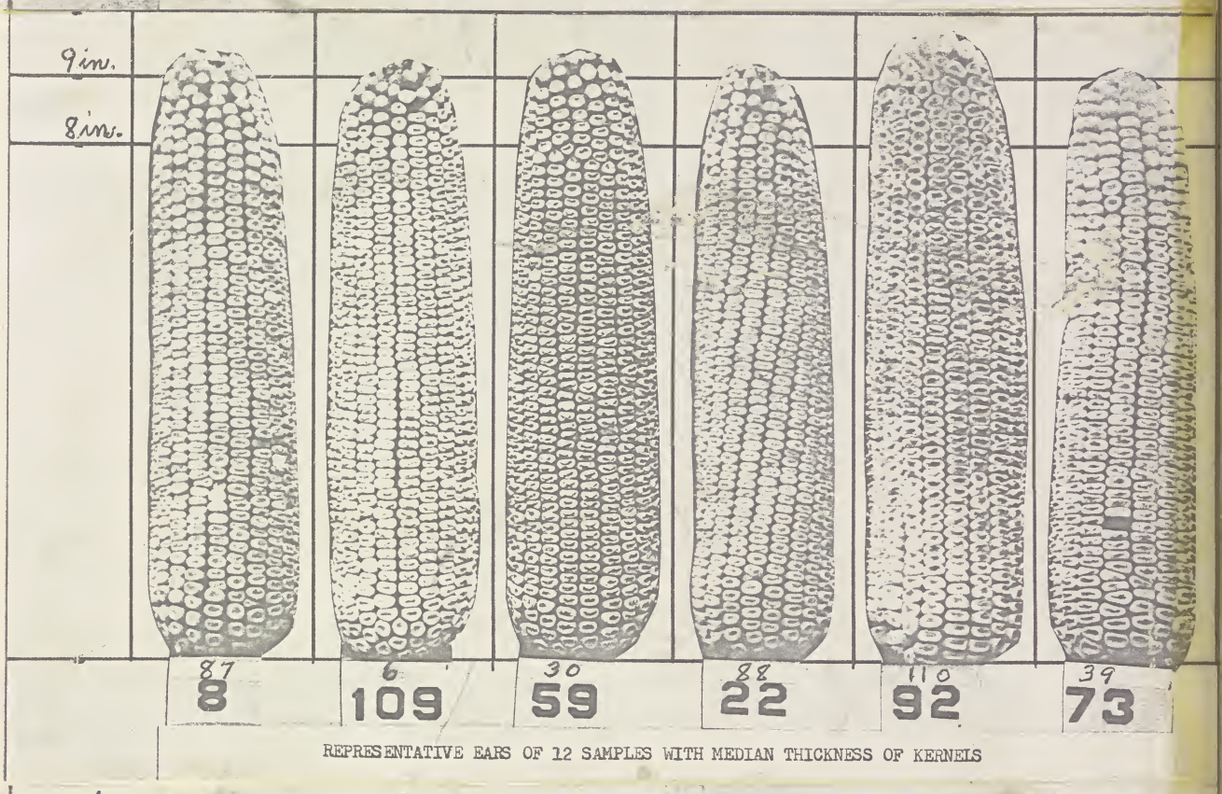
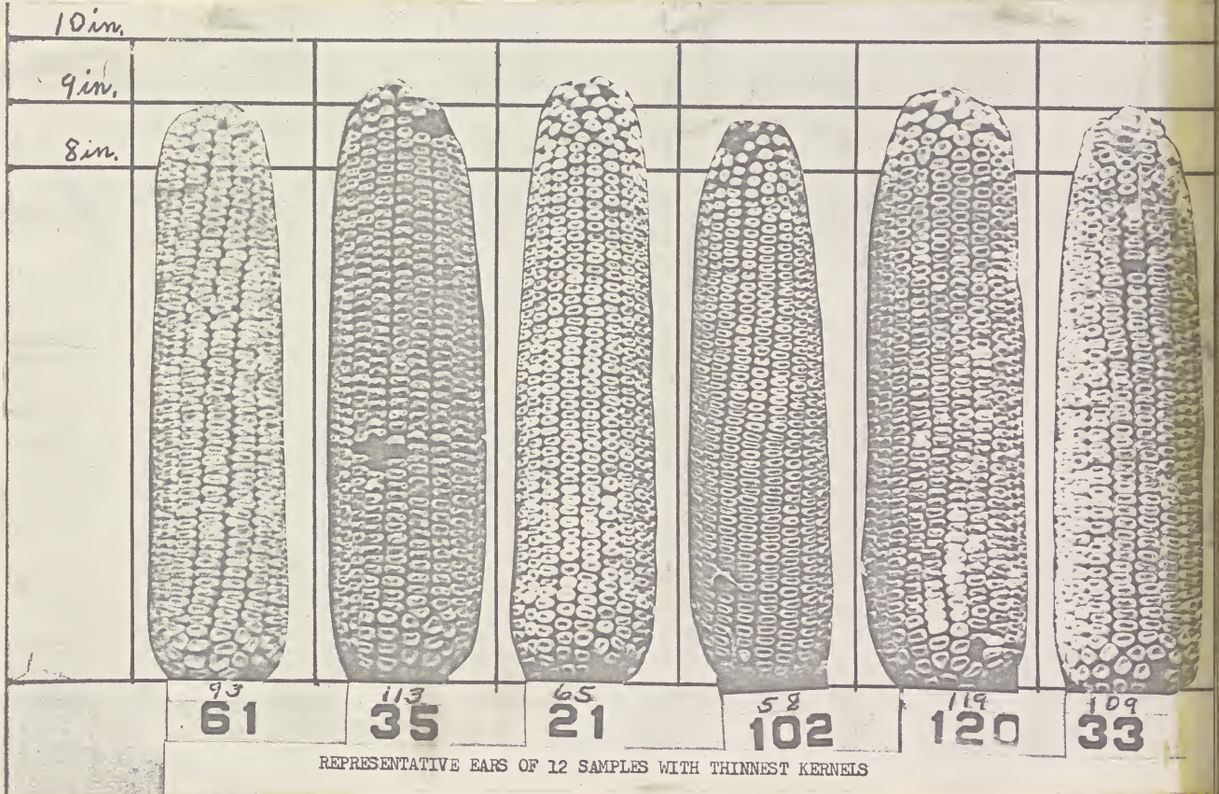


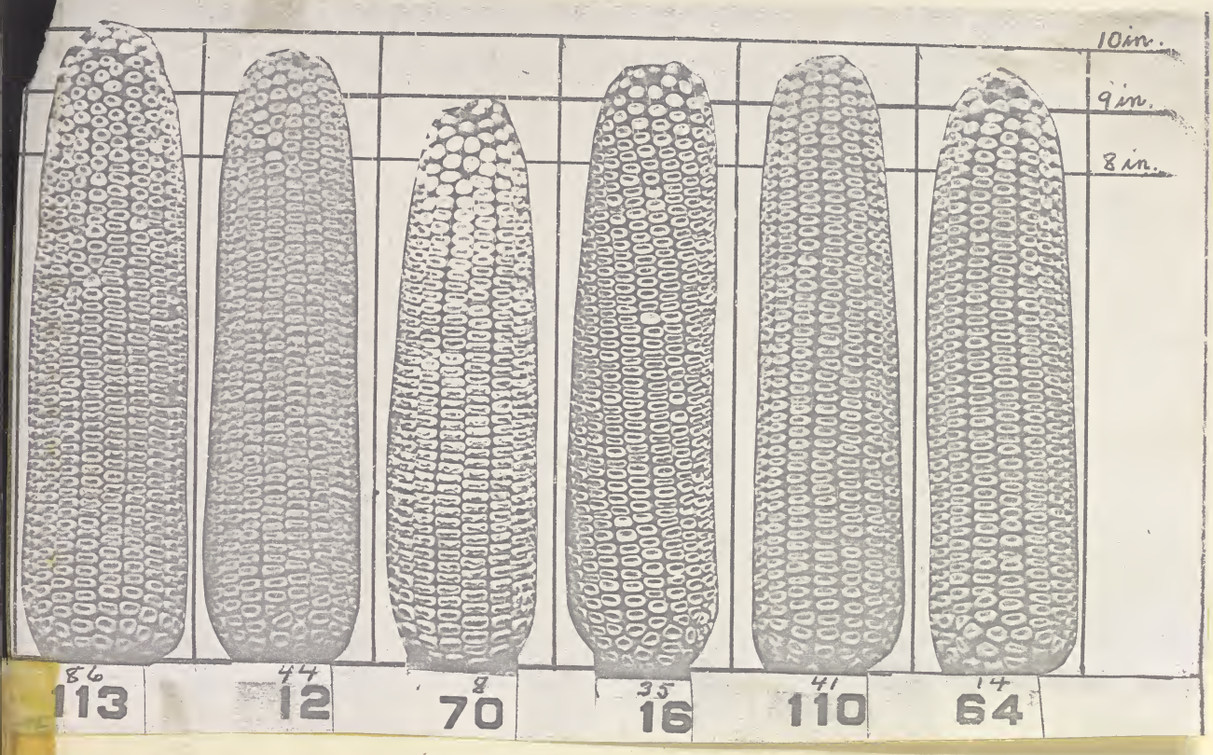
REPRESENTATIVE EARS OF 12 SAMPLES WITH THICKEST KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN THICKNESS OF KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH THINNEST KERNELS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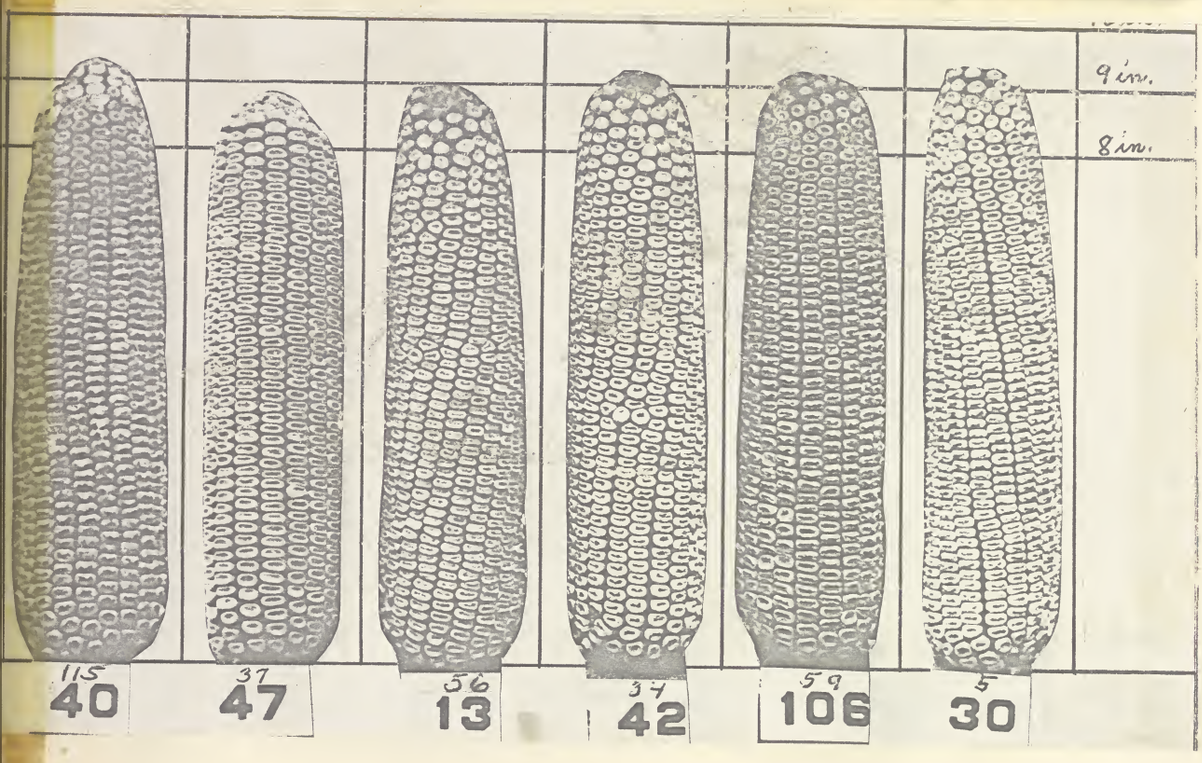
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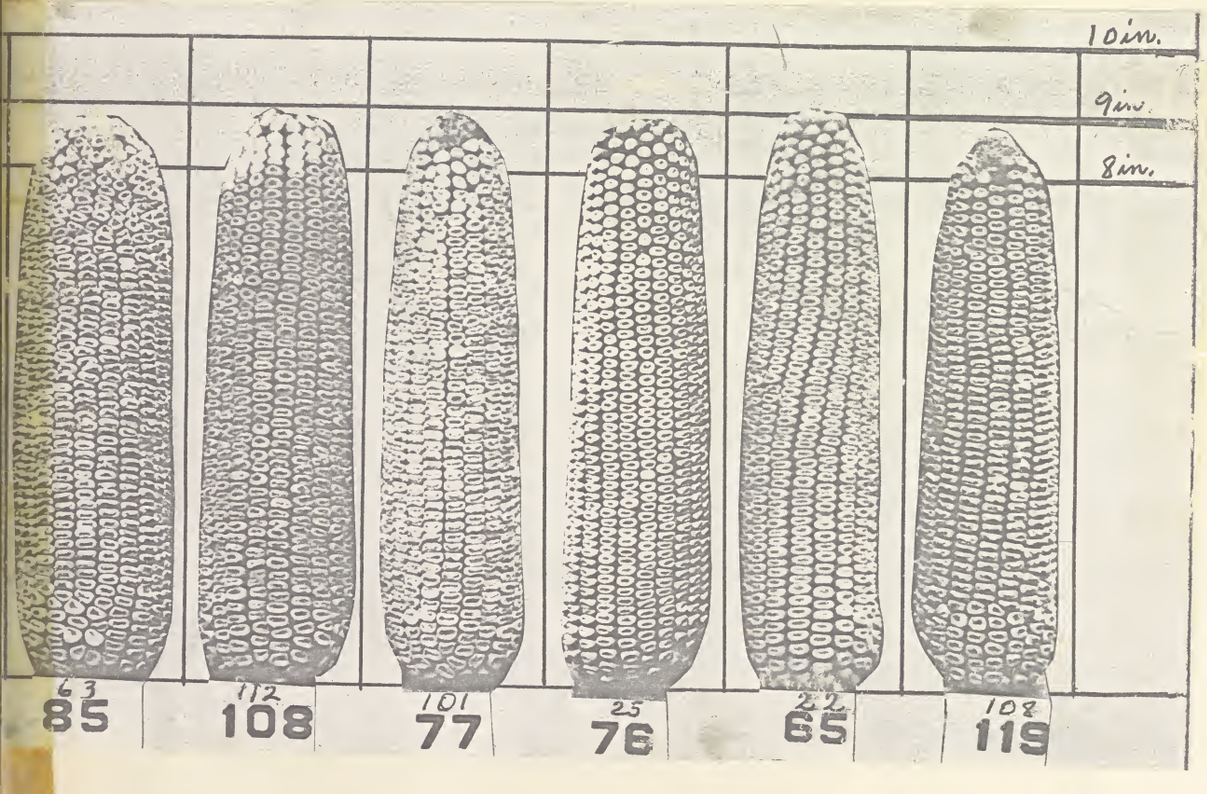
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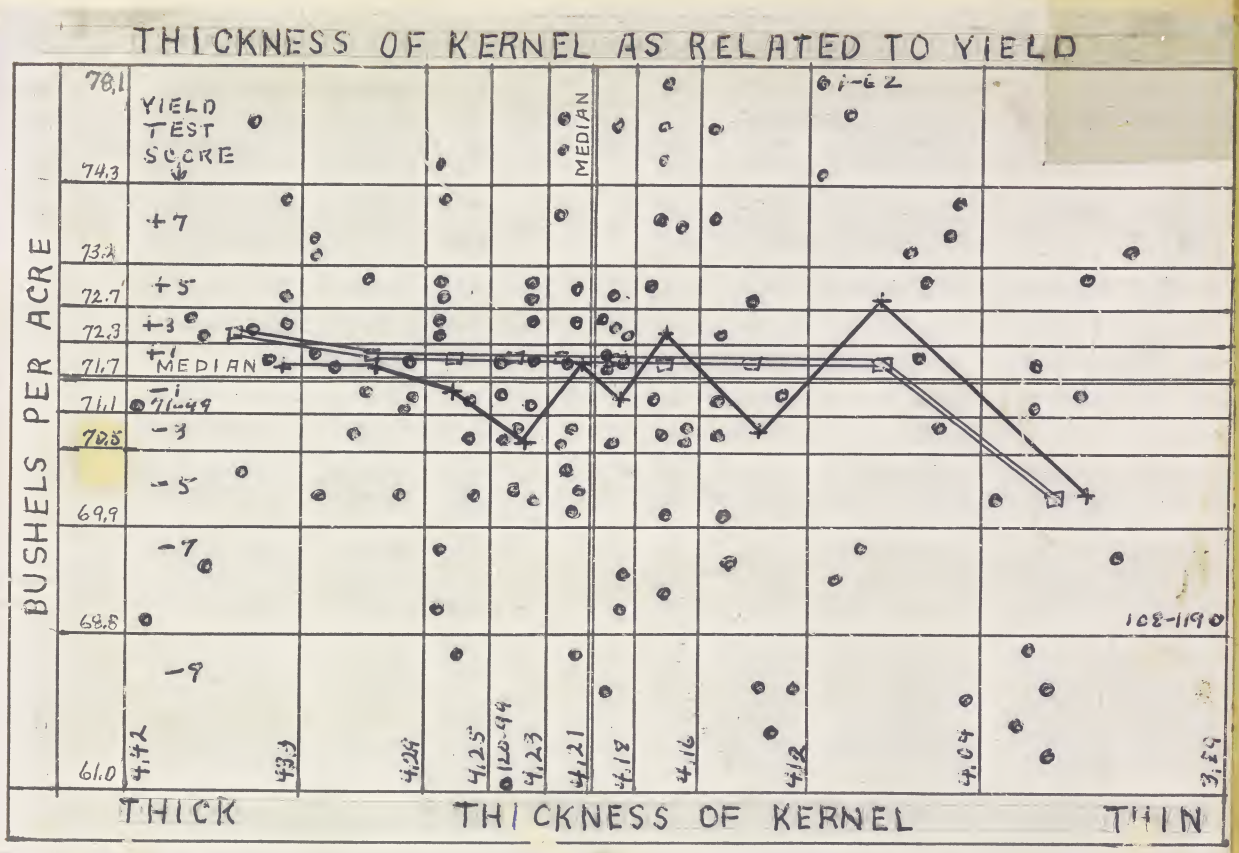


THICKNESS OF KERNEL AS RELATED TO YIELD
AND EIGHTEEN OTHER DESCRIPTIVE ITEMS

The thickness of kernel was determined from a study of the samples of seed prepared for planting. Thirty-three or thirty-four kernels of each sample were laid in a row with the germ side of each kernel against the back side of the next kernel just as kernels are arranged on the ear. The total length of the row of kernels was measured in millimeters and divided by the number of kernels to get the average thickness of kernels.

The trend line for yield as shown above indicates only a little advantage for the thickest kernels. It does show a disadvantage for the thinnest kernels. The sample with the thickest kernels, No.71-49, was a little below average in yield. The sample with the thinnest kernels, No.108-119, was among the lowest yielding samples.

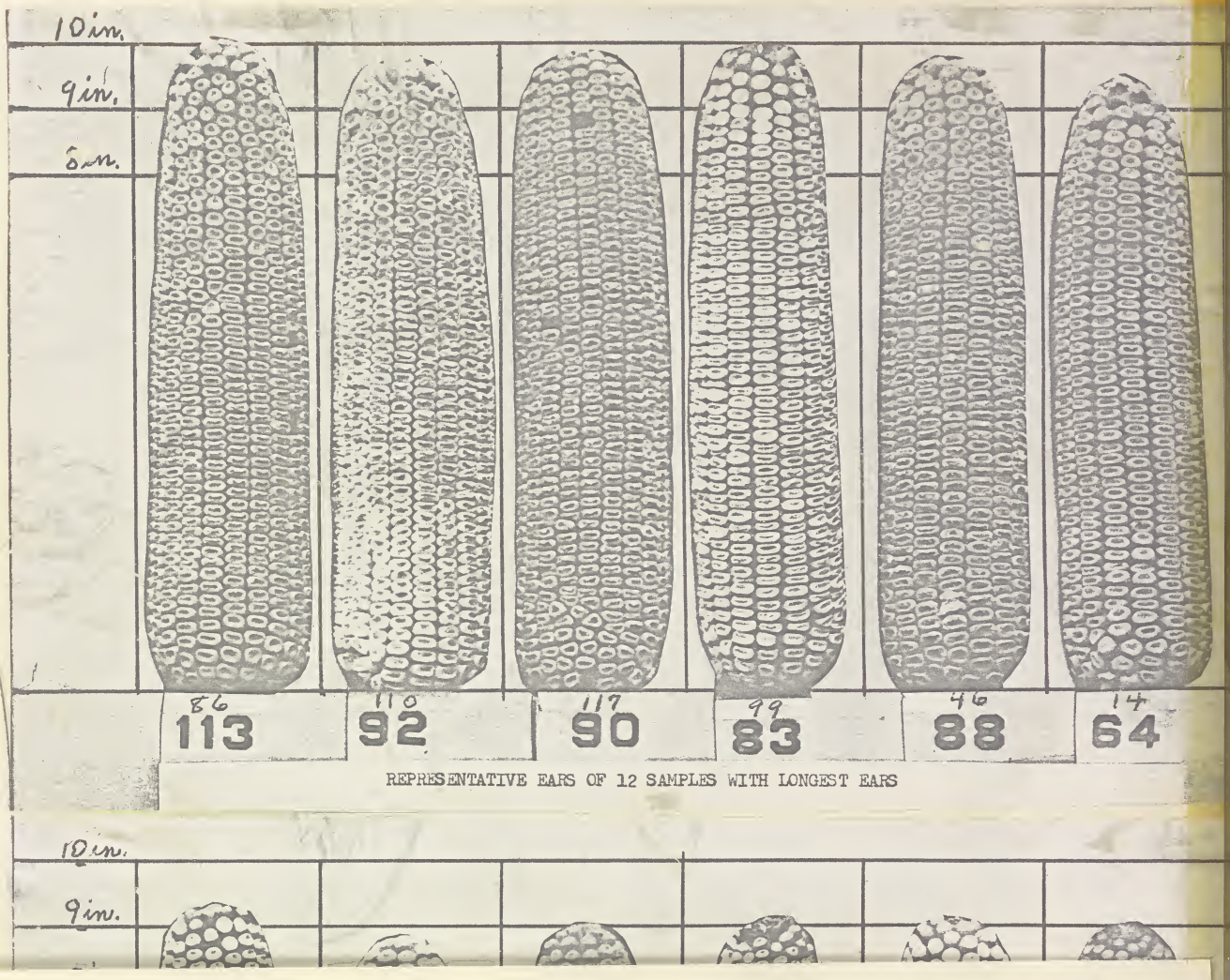
Based on this test, suggestions for selecting ears for a seed plot would have been," "Other things being equal, discard ears having very thin kernels.

Thickness of kernels

as related to
BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	72.0	71.9	70.1	High 78.1					●▲ Median 71.7			○			Low 61.0	122-, 125
Percent of good corn	90.2	90.1	89.4	High 92.7				●	▲ 89.8		○				Low 85.8	126-129
Percent of moisture	21.8	21.1	20.9	Low 17.9				▲○	● 21.4						High 24.8	130-133
Percent of shelled corn	85.5	85.8	85.6	High 87.3					▲ 85.8 ○		●				Low 84.5	134-137
Density of shelled corn	34.2	33.9	34.4	Heavy 35.6			○		● 34.2			▲			Light 32.4	138-141
Germination index	86.9	84.9	89.1	High 93.8				○	● 87.1			▲			Low 84.5	142-145
Disease index	73.9	73.4	74.3	Little 90.2					● 75.7 ○		●▲				Much 58.3	146-149
Weight of ears	13.18	13.15	12.16	Heavy 15.07			●▲		12.75			○			Light 10.35	150-153
Items observed by oldtime corn judges																
Density of ears	39.59	39.49	39.54	Heavy 42.03					● Median ○ 39.54 ▲						Light 37.58	154-157
Kernel development	61.5	57.4	54.0	Good 78.6				●	▲ 56.4 ○						Poor 35.3	158-161
Indentation index	39.1	53.0	51.7	Smooth 16.5				●	44.7			▲○			Rough 87.3	162-165
Length of kernels	13.28	13.69	13.39	Long 15.72			▲		13.41 ○		●				Short 12.47	166-169
Width of kernels	8.10	7.93	7.76	Wide 9.01			●		▲ 7.92			○			Narrow 7.12	170-173
Thickness of kernels	4.37	4.20	3.98	● Thick 4.42					▲ 4.21						Thin 3.89 ○	174-177
Length of ears	9.20	9.02	8.64	Long 9.67					●▲ 8.96					○	Short 8.25	178-181
Diameter of ears	2.145	2.166	2.128	Small 2.012					○ 2.137		▲				Large 2.304	182-185
No. of rows of kernels	18.0	18.5	18.5	Small 14.9				●	18.3 ▲○						Large 2.09	186-189
Color of shank index	68.5	69.5	68.5	White 86.7					●▲ ○ 67.7						Dark 36.7	190-193
Condition of shank index	39.2	39.6	39.6	Smooth 58.3					●▲ ○ 38.4						Rough 18.3	194-197
Variation index	7.1	7.2	7.2	Uniform 3.0					7.0		●▲ ○				Uneven 11.0	198-201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



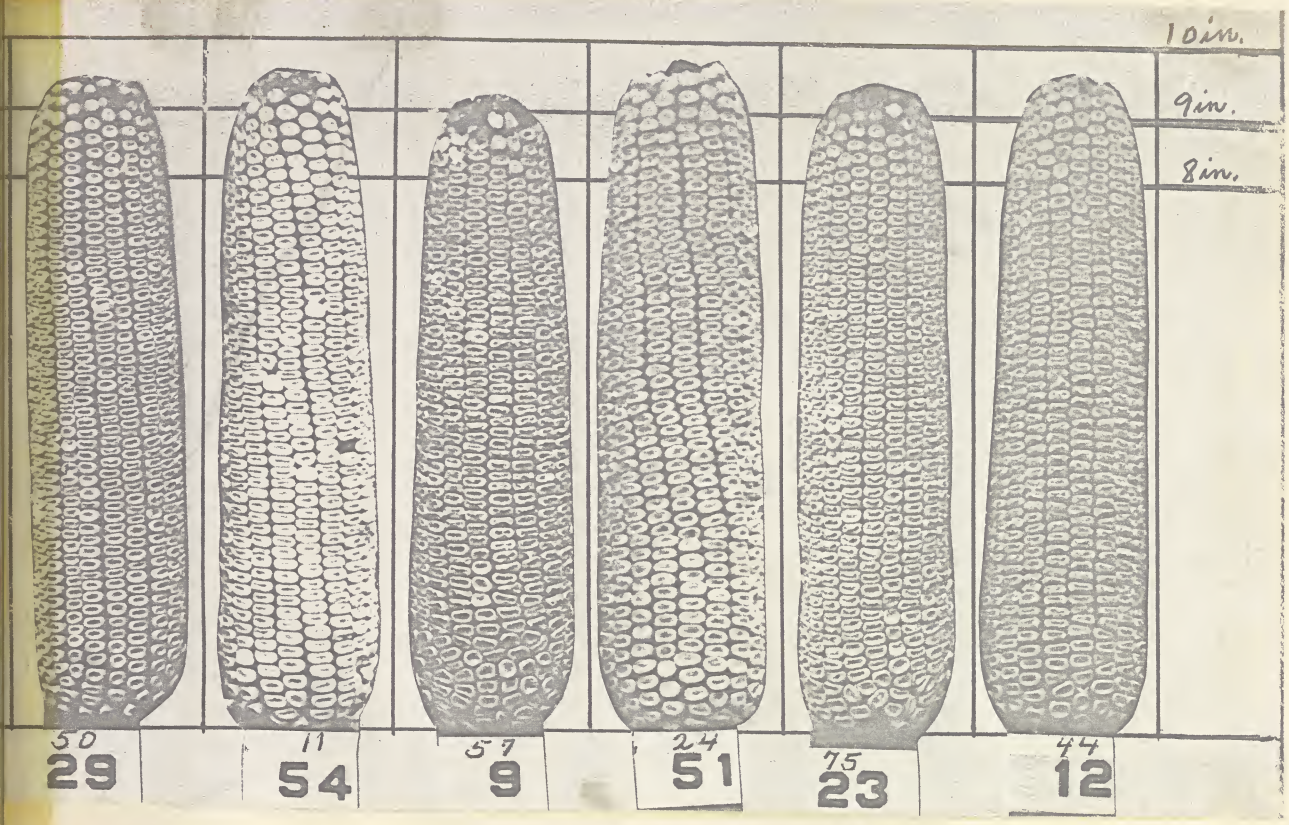
REPRESENTATIVE EARS OF 12 SAMPLES WITH LONGEST EARS

LENGTH OF EAR

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 180-181)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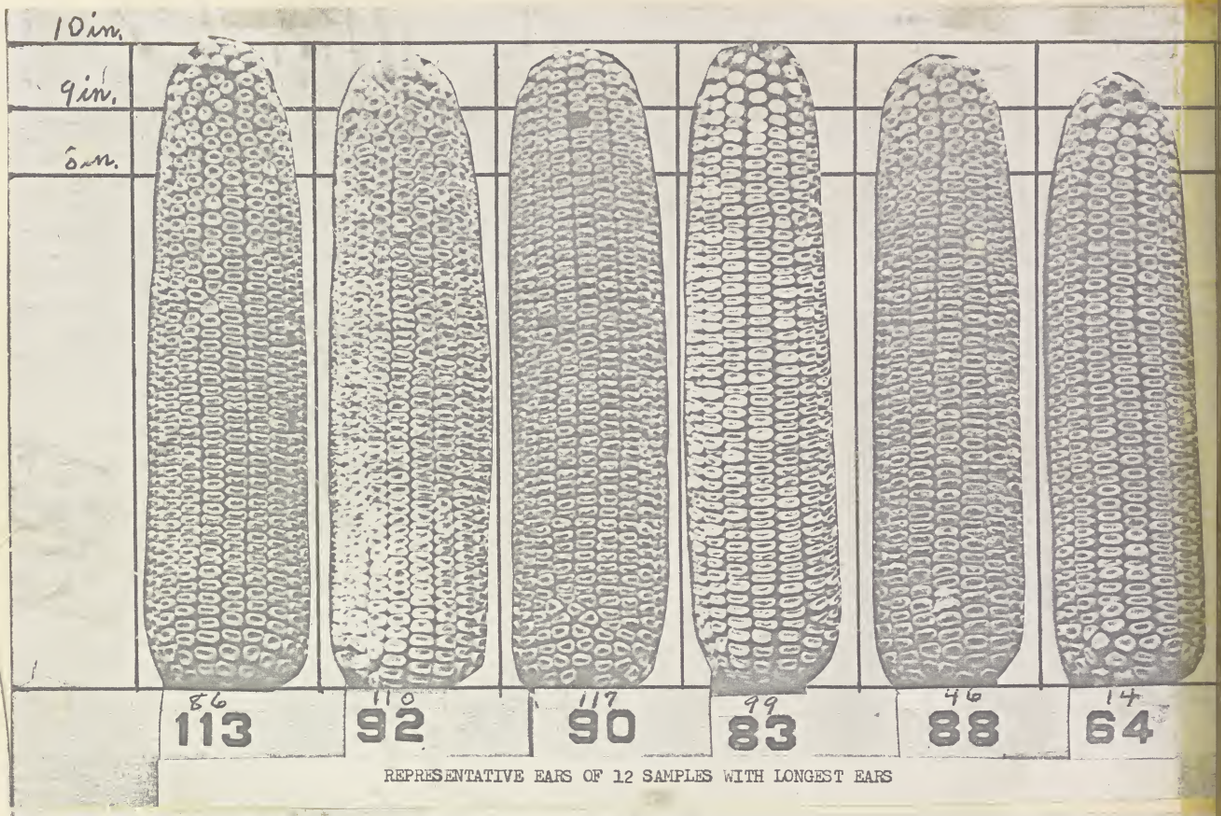
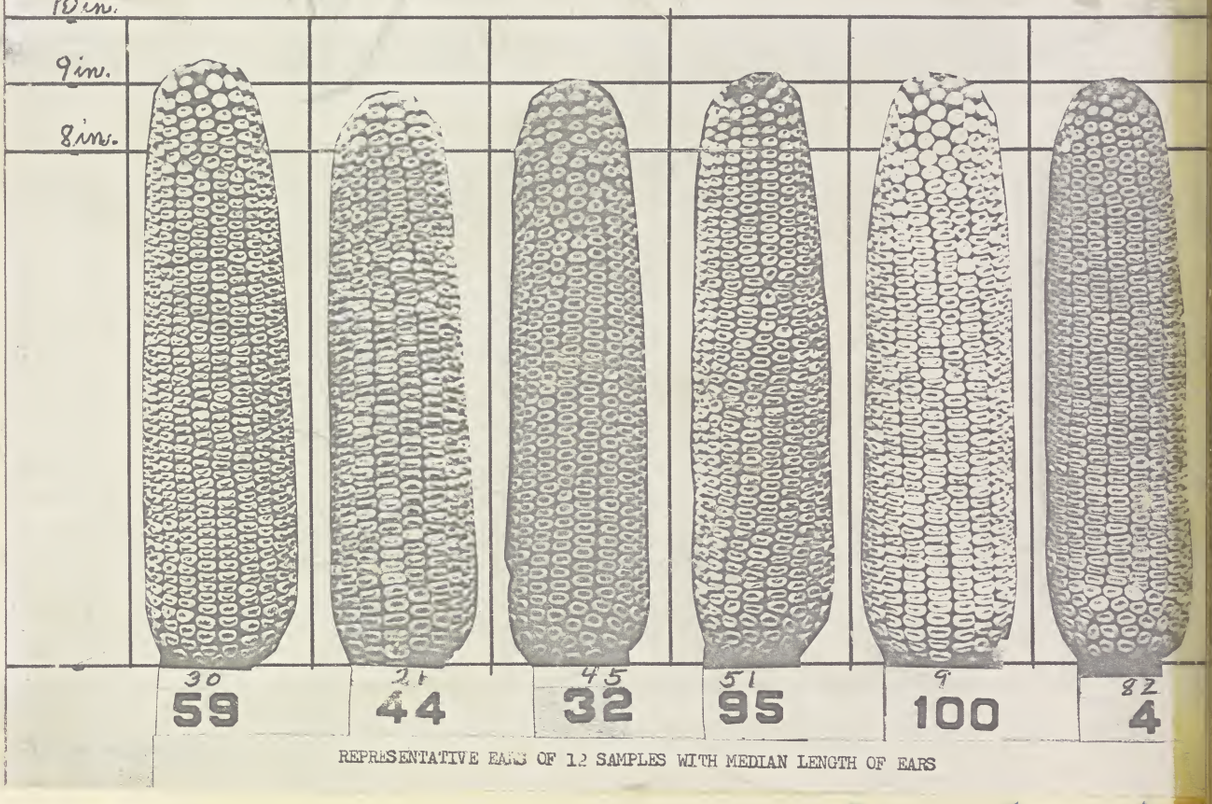
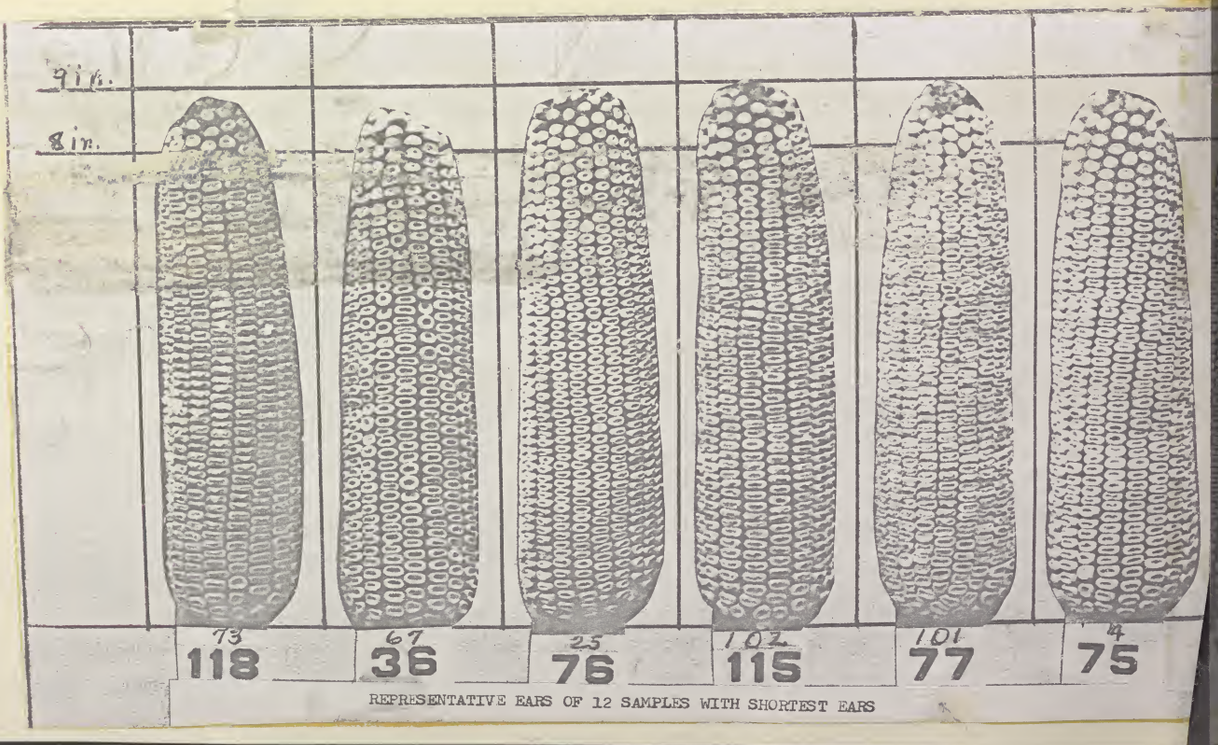


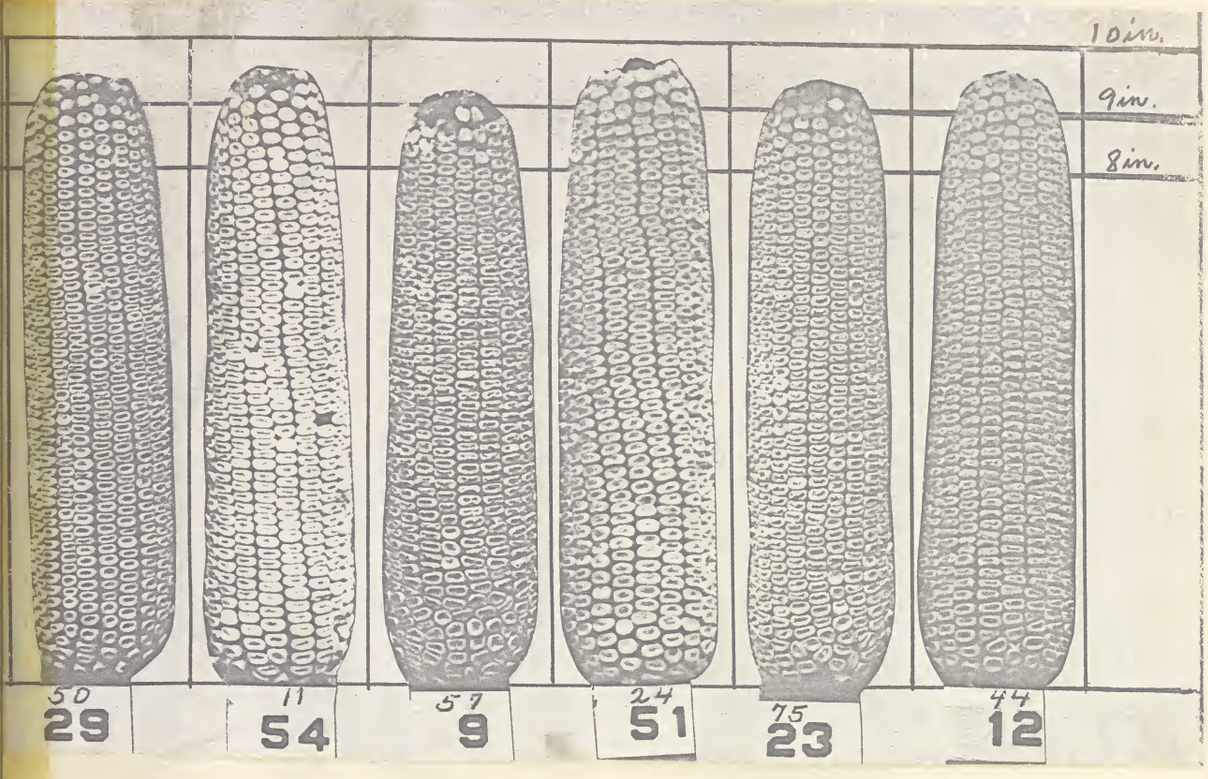
REPRESENTATIVE EARS OF 12 SAMPLES WITH LONGEST EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN LENGTH OF EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH SHORTEST EARS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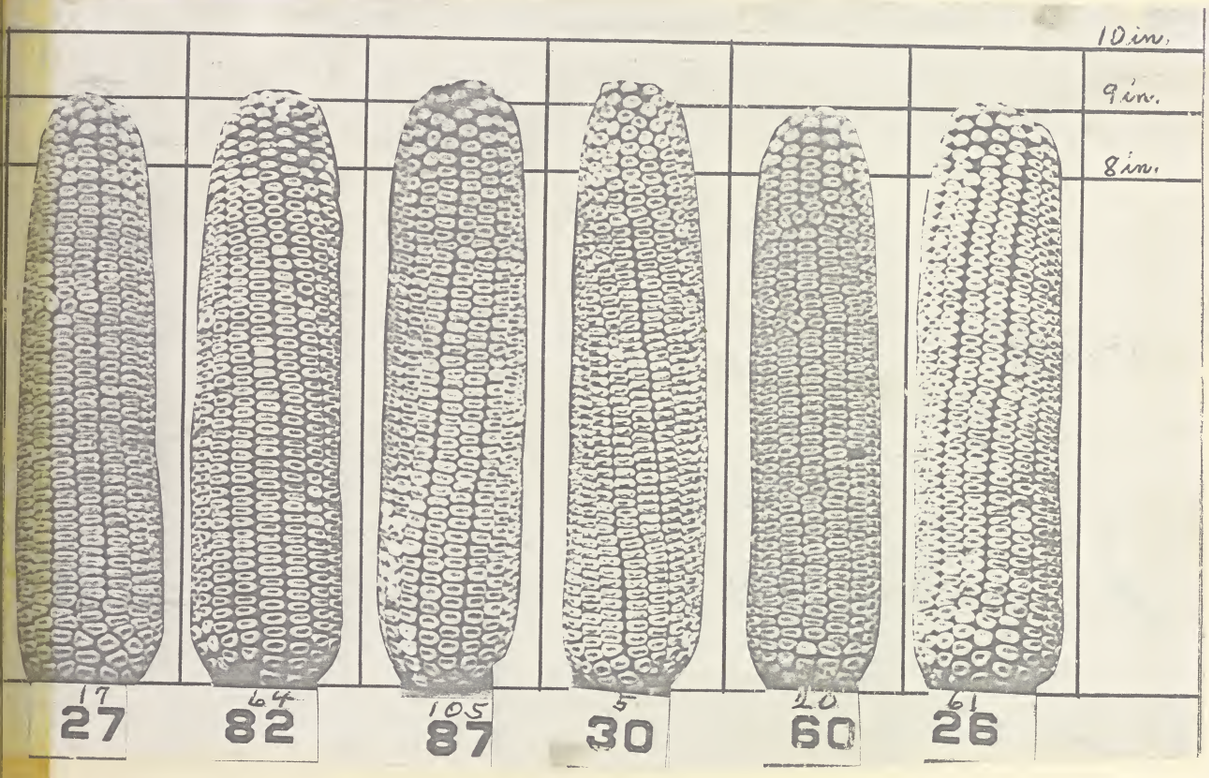
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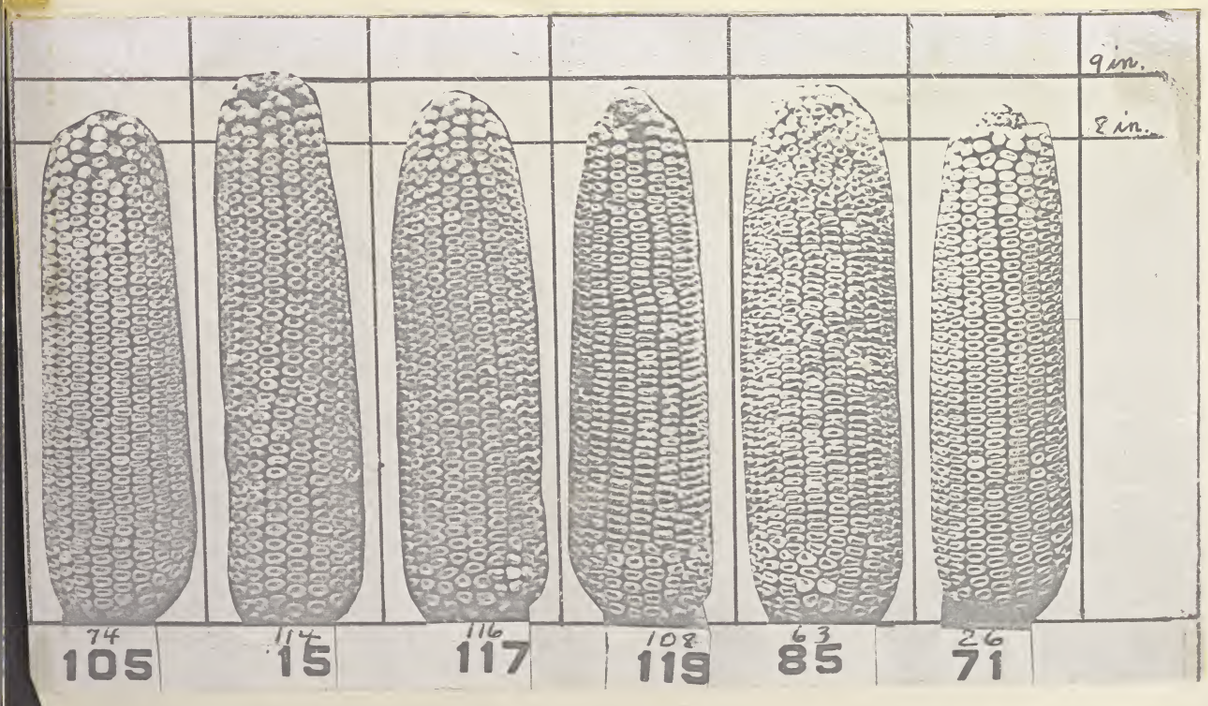
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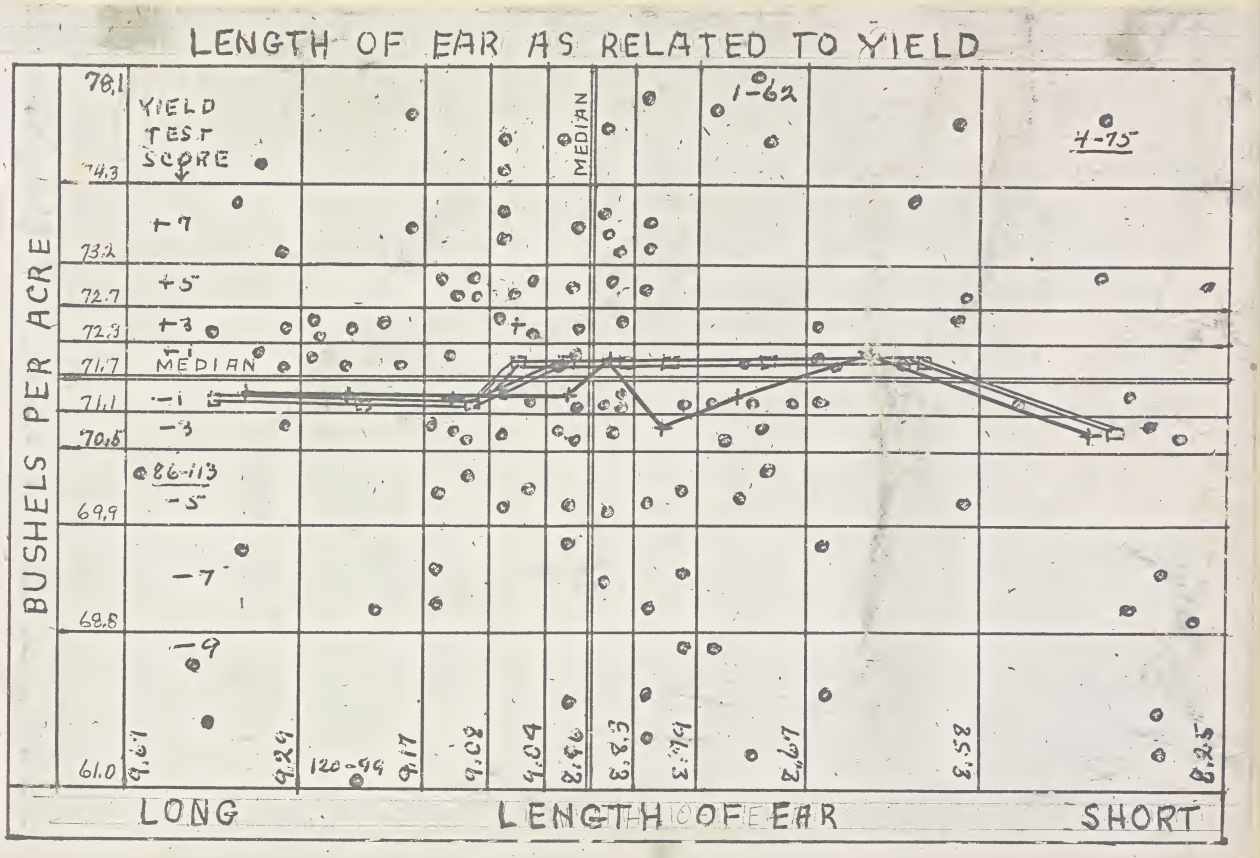


LENGTH OF EAR AS REELATED TO YIELD AND
EIGHTEEN OTHER DESCRIPTIVE ITEMS

The length of ear used in this study was the average length in inches of the representative ten-ear samples of each farmer's seed that was saved each year of the test.

The distribution of the 120 samples according to length of ear and yield per acre as shown above leads to the conclusion that length of ear considered alone is useless as a means of selecting either high or low yielding seed corn.

Length of ears

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored — Decil groups 1 2 3 4 5 6 7 8 9 — Poorest or least favored 10	See pages of Vol. II
Items that required field or laboratory tests					
Bushels per acre	71.5	72.6	70.8	High 78.1 — Median 71.7 — Low 61.0	122–125
Percent of good corn	89.6	89.7	89.4	High 92.7 — 89.8 — Low 85.8	126–129
Percent of moisture	22.6	21.2	20.1	Low 17.9 — 21.4 — High 24.9	130–133
Percent of shelled corn	85.5	85.9	85.7	High 87.3 — 85.8 — Low 84.5	134–137
Density of shelled corn	34.0	34.2	34.3	Heavy 35.6 — 34.2 — Light 32.4	138–141
Germination index	85.2	86.2	89.8	High 93.8 — 87.1 — Low 64.5	142–145
Disease index	73.4	74.1	76.2	Little 90.2 — 75.7 — Much 58.3	146–149
Weight of ears	13.91	12.66	11.61	Heavy 15.07 — 12.75 — Light 10.35	150–153
Items observed by oldtime corn judges					
Density of ears	39.58	39.74	39.79	Heavy 42.03 — Median 39.54 — Light 37.58	154–157
Kernel development	59.9	57.5	56.6	Good 78.6 — 56.4 — Poor 38.3	158–161
Indentation index	45.8	47.0	47.4	Smooth 16.5 — 44.7 — Rough 87.3	162–165
Length of kernels	13.65	13.42	13.28	Long 15.72 — 13.41 — Short 12.47	166–169
Width of kernels	8.11	7.92	7.69	Wide 9.01 — 7.92 — Narrow 7.12	170–173
Thickness of kernels	4.29	4.19	4.06	Thick 4.42 — 4.21 — Thin 3.89	174–177
Length of ears	9.38	8.96	8.39	Long 9.67 — 8.96 — Short 8.25	178–181
Diameter of ears	2.183	2.128	2.104	Small 2.012 — 2.137 — Large 2.304	182–185
No. of rows of kernels	18.3	18.2	18.6	Small 14.9 — 18.3 — Large 2.09	186–189
Color of shank index	66.8	61.6	66.4	White 86.7 — 67.7 — Dark 36.7	190–193
Condition of shank index	40.2	38.1	40.4	Smooth 58.3 — 38.4 — Rough 18.3	194–197
Variation index	6.6	7.2	7.3	Uniform 3.0 — 7.0 — Uneven 11.0	198–201

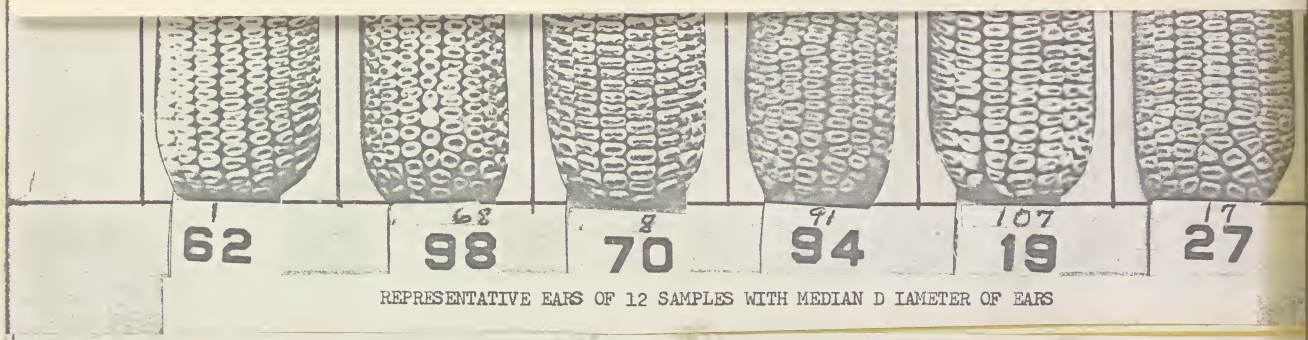
★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

DIAMETER OF EAR

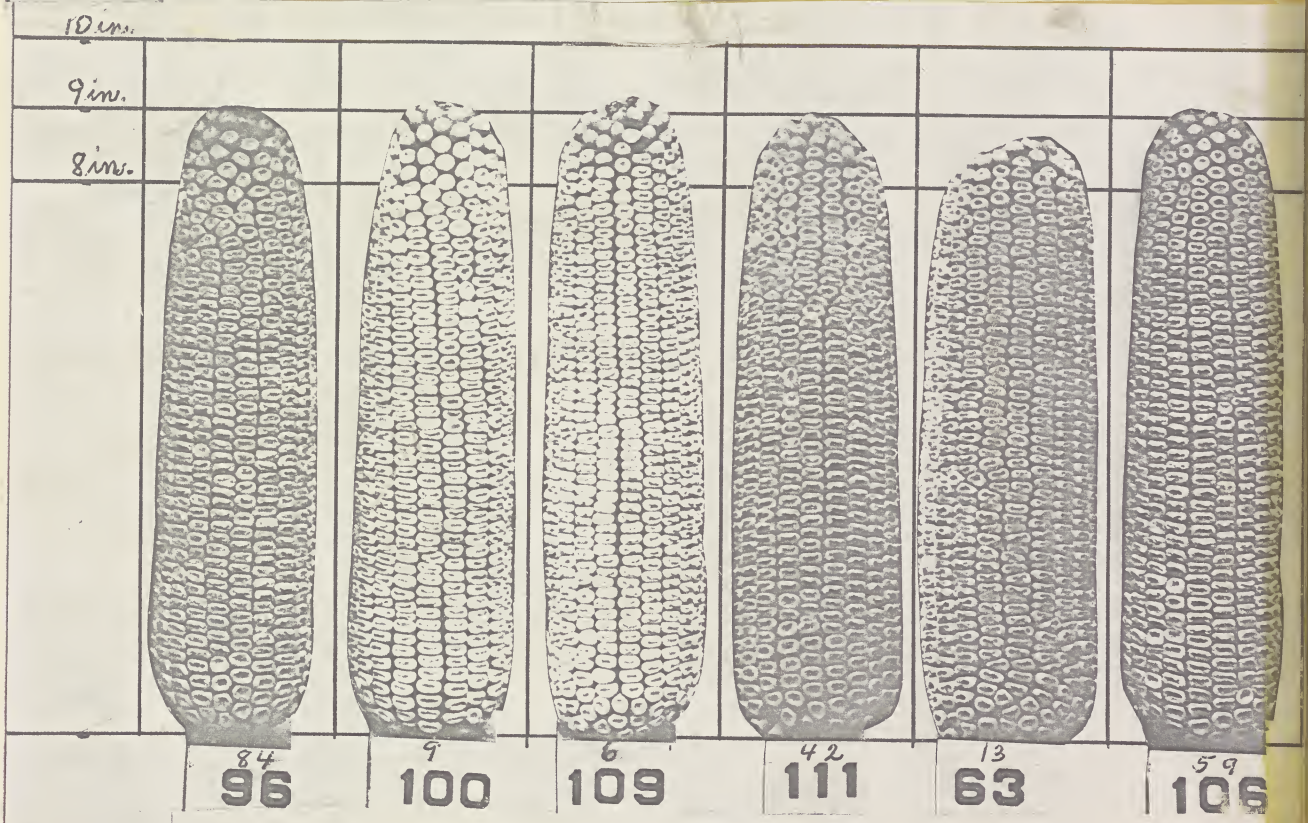
as related to

Yield and 18 OTHER DESCRIPTIVE ITEMS

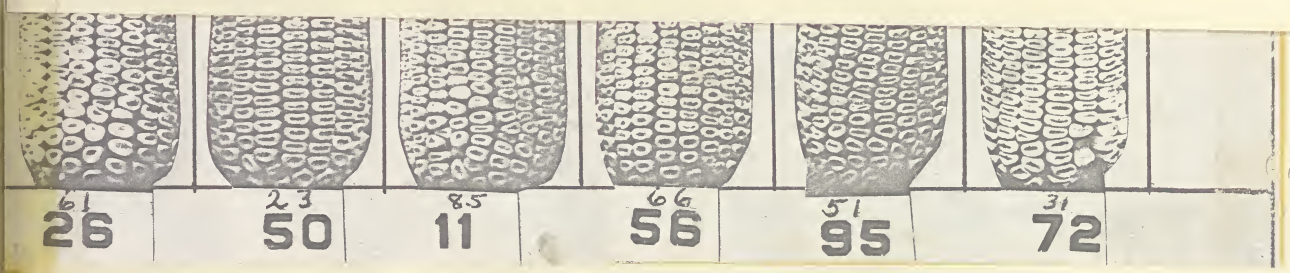
(See pages 184-185)



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN D IAMETER OF EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH LARGEST DIAMETER OF EARS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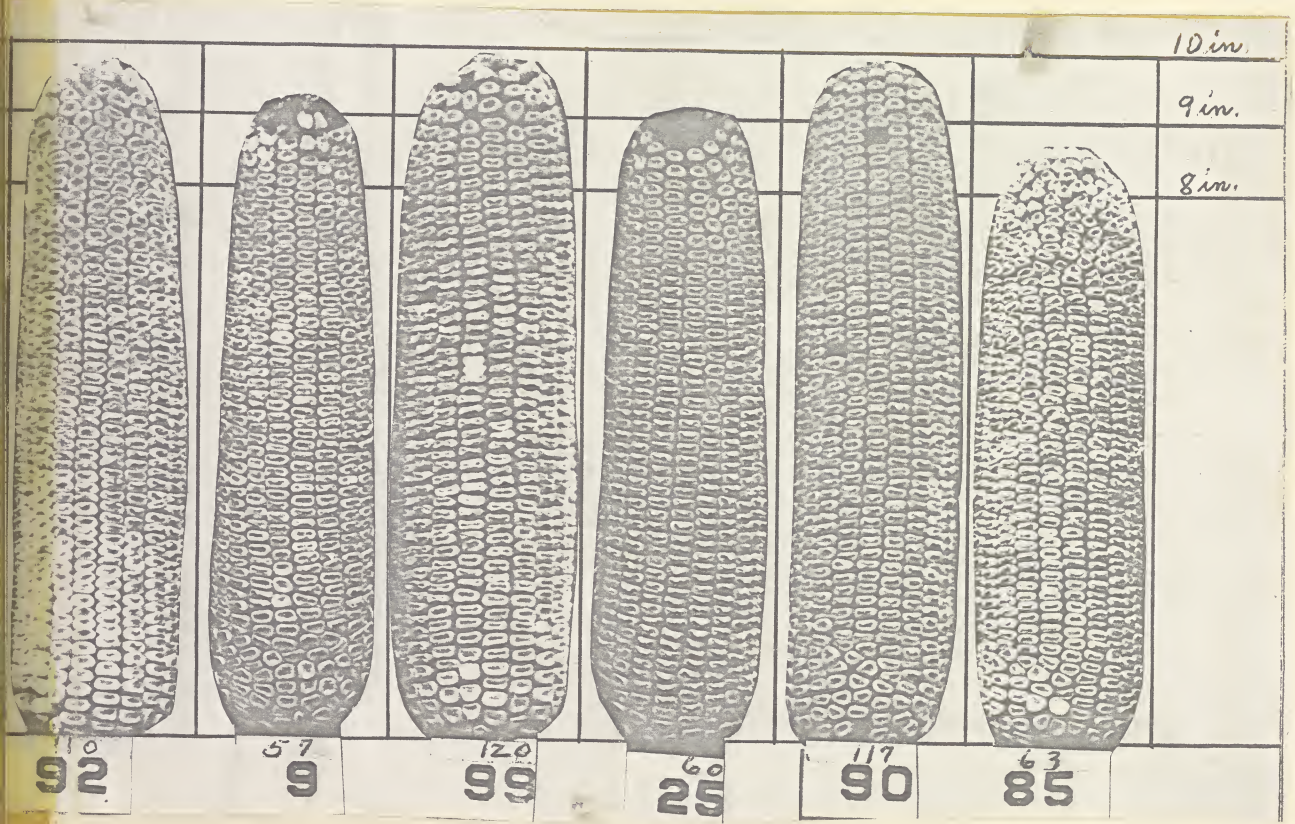
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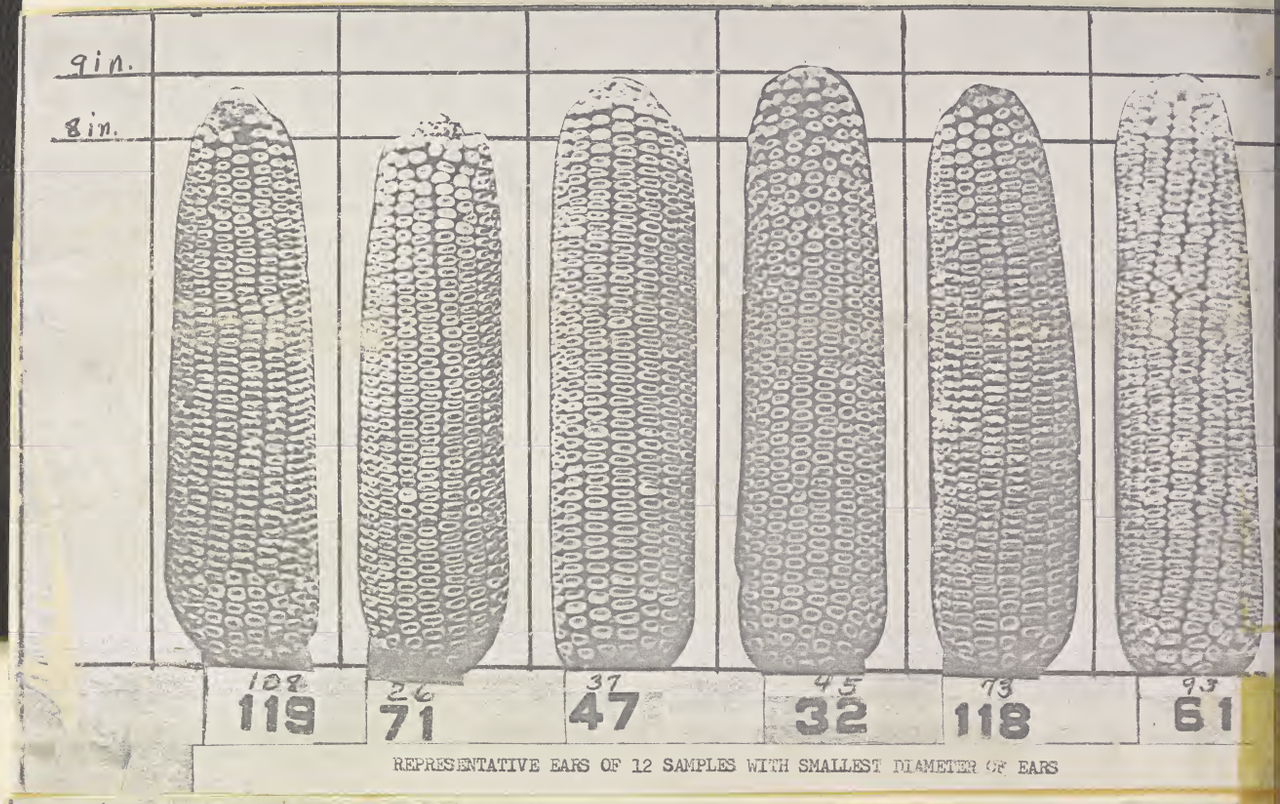
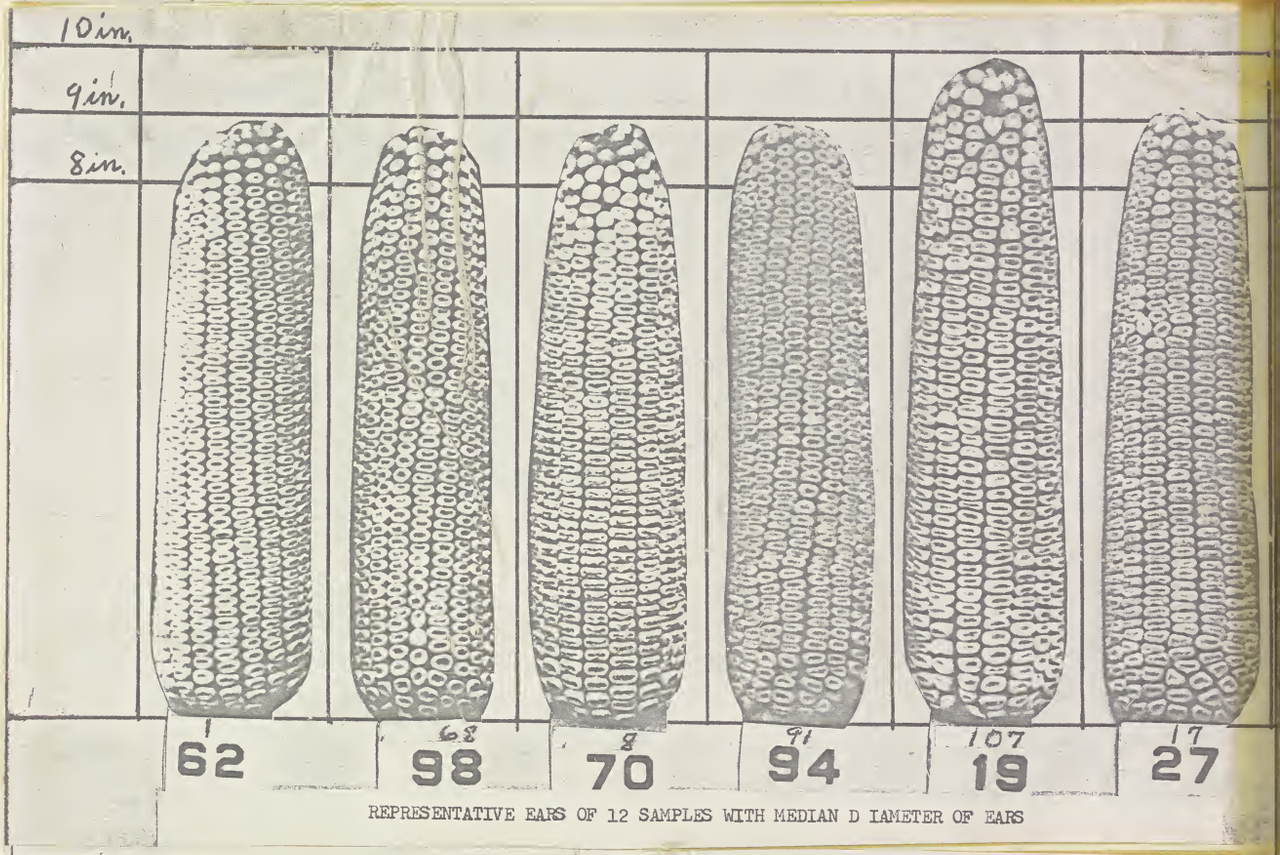
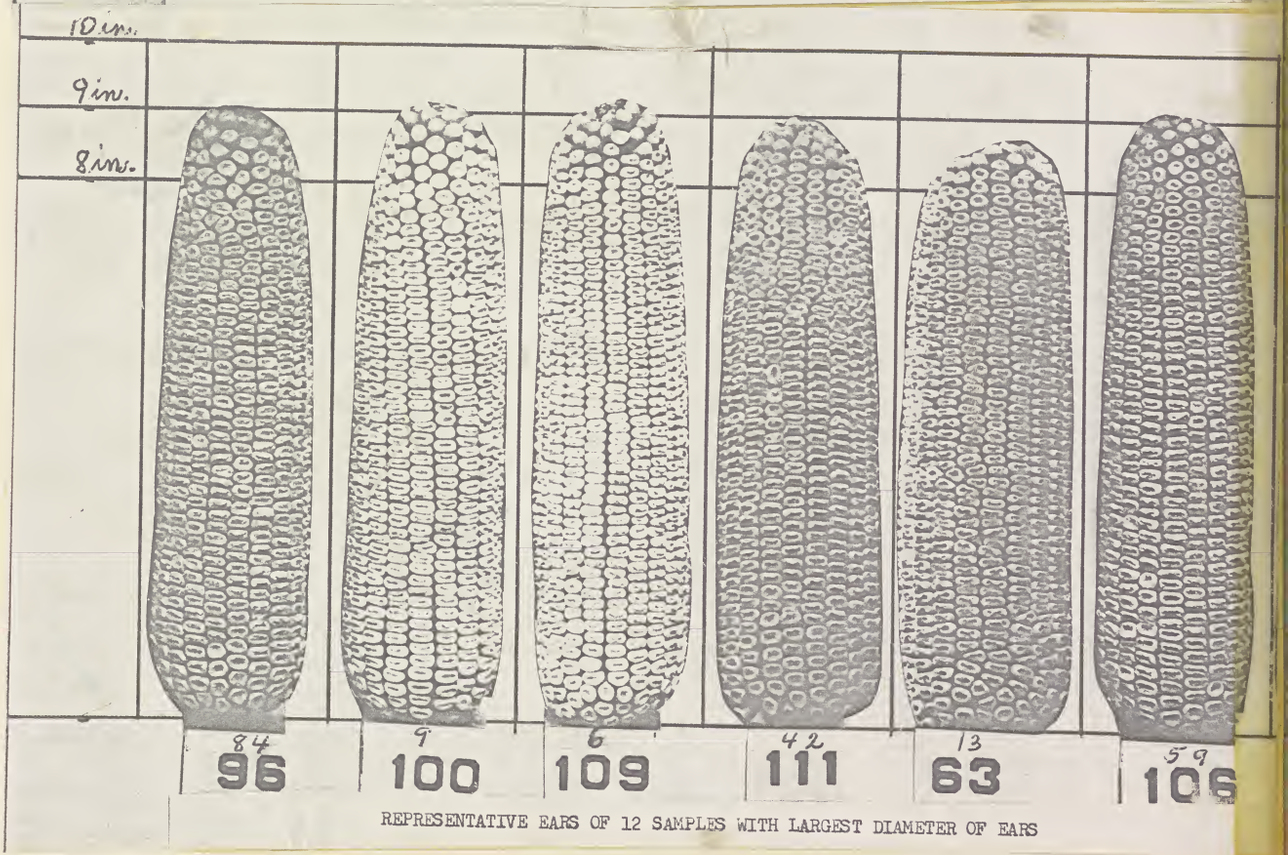


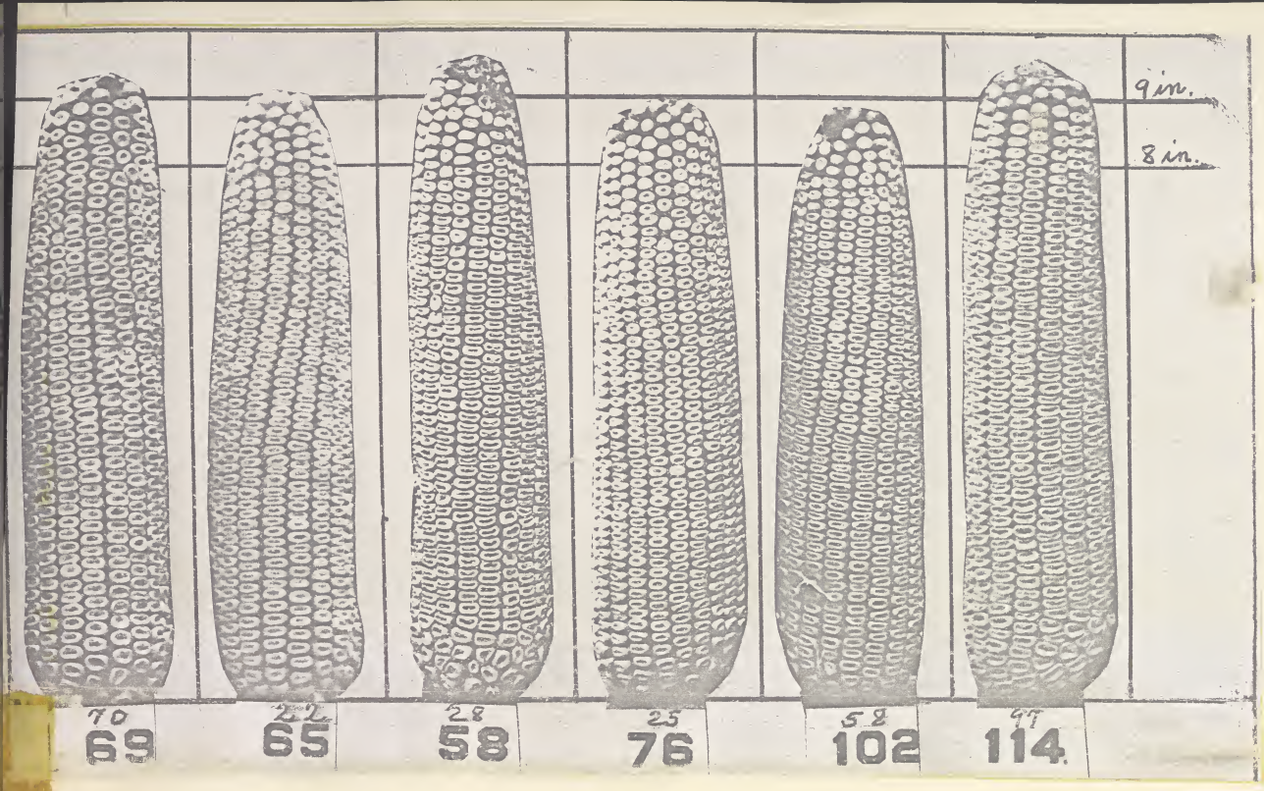
REPRESENTATIVE EARS OF 12 SAMPLES WITH SMALLEST DIAMETER OF EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN D IAMETER OF EARS



REPRESENTATIVE EARS OF 12 SAMPLES WITH LARGEST DIAMETER OF EARS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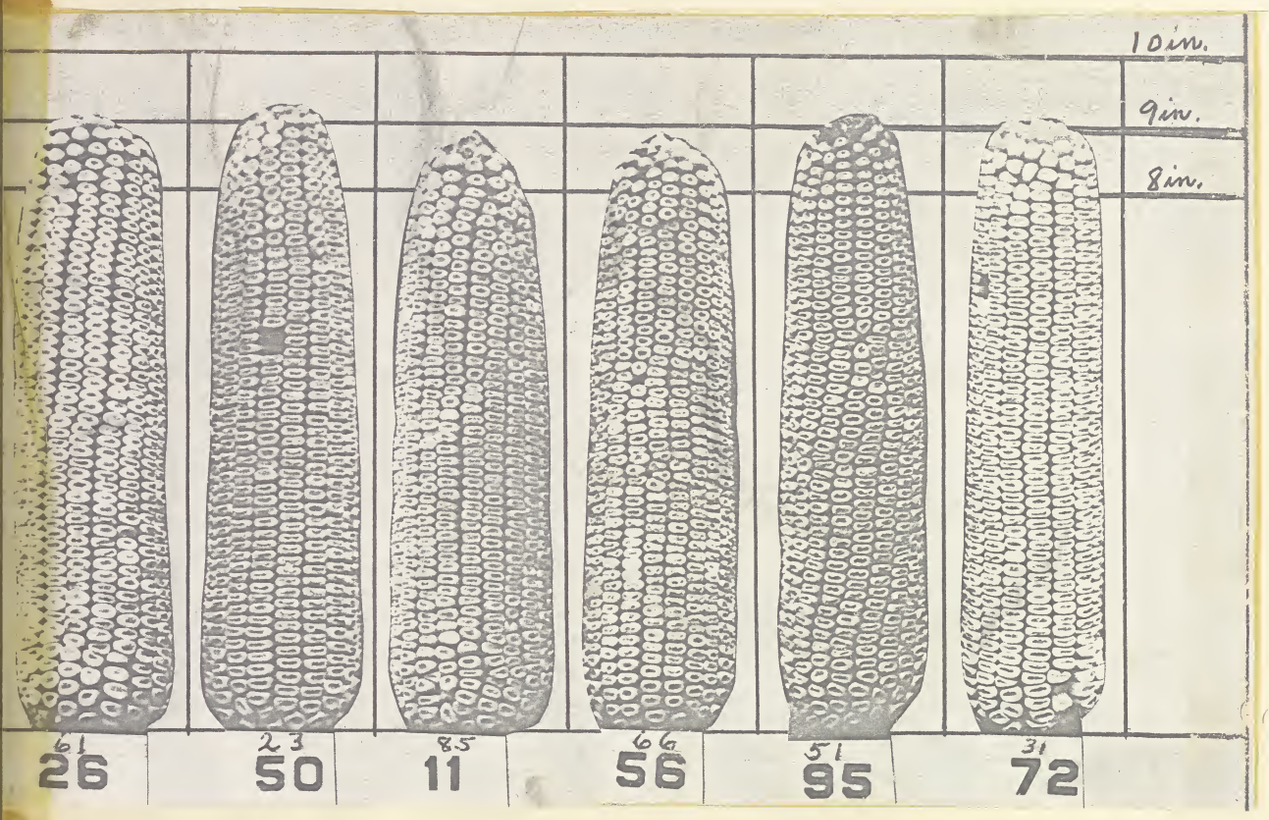
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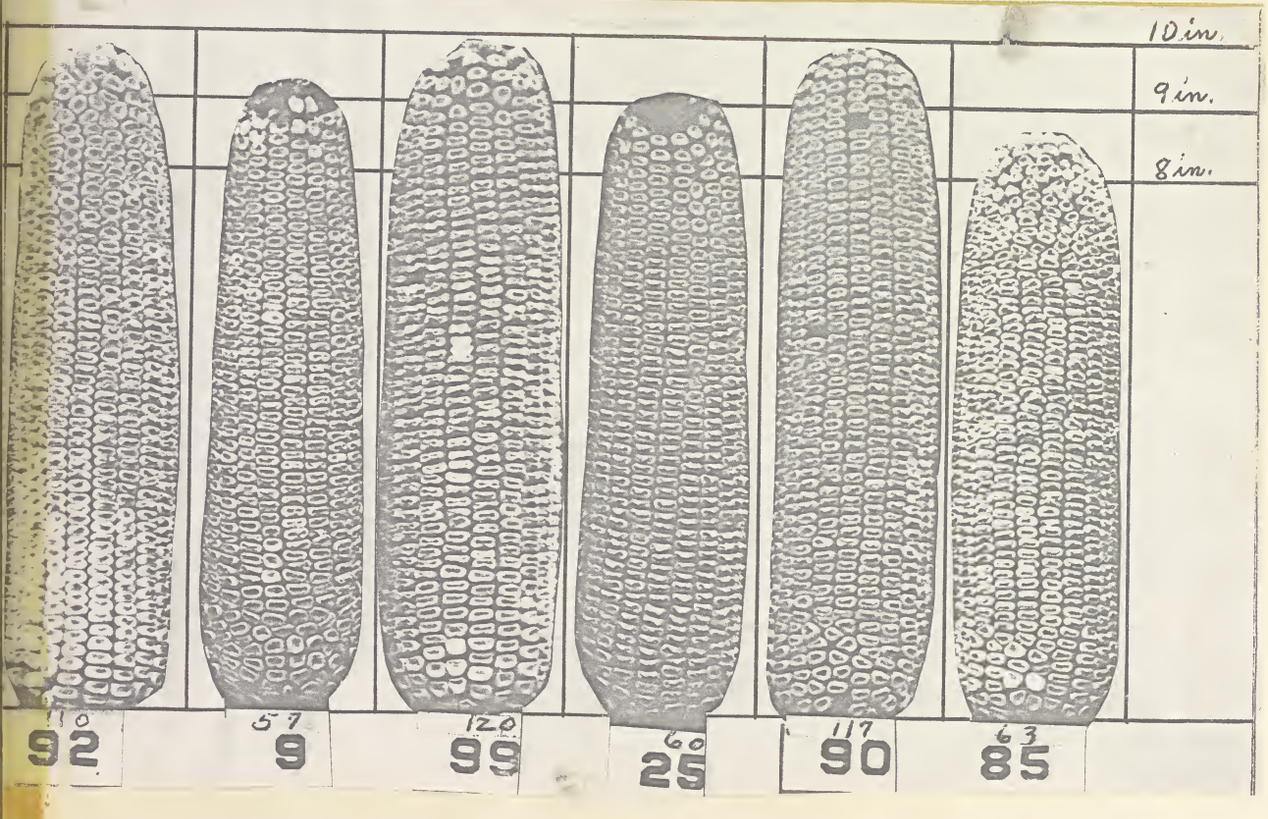
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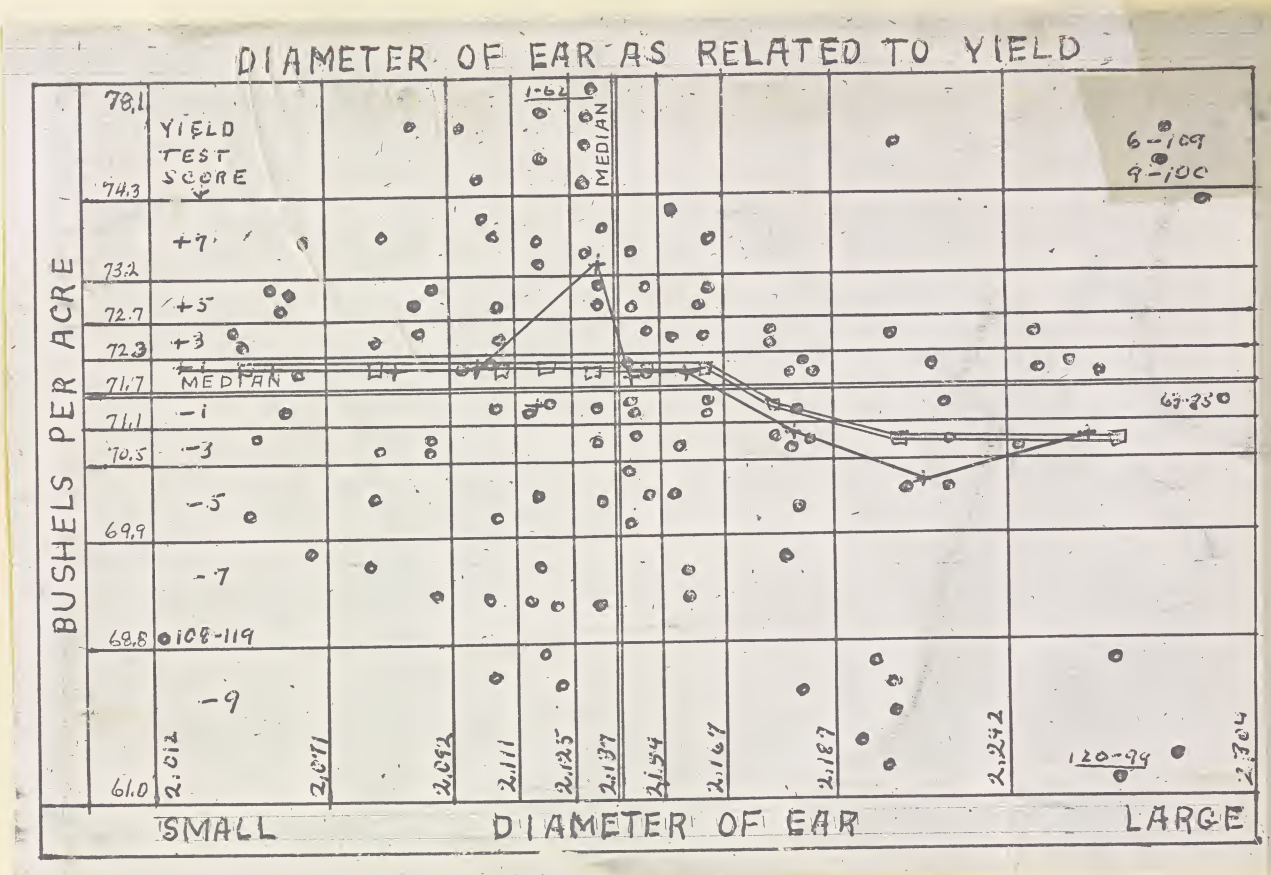


DIAMETER OF EAR AS RELATED TO YIELD AND
TO EIGHTEEN OTHER DESCRIPTIVE ITEMS

The diameter of ear was determined by a study of the representative ten-ear samples saved from each farmer's sample each year. The average diameter was measured by laying the ears side by side, measuring the length of the row of ears and dividing by ten.

The distribution of the 120 samples according to the diameter of ears and yield per acre shows in the chart above that nine of the twelve high yielding samples had ears of medium to small diameter. Nine of the twelve low yielding samples had ears of large diameter.

The high yielding sample, No.1-62, was of medium to short length and of medium diameter while the lowest yielding sample, No.120-99, had long ears with large diameter.

A study of the records leads to the conclusion that diameter of ear alone is like length of ear; useless for selecting high or low yielding seed corn.

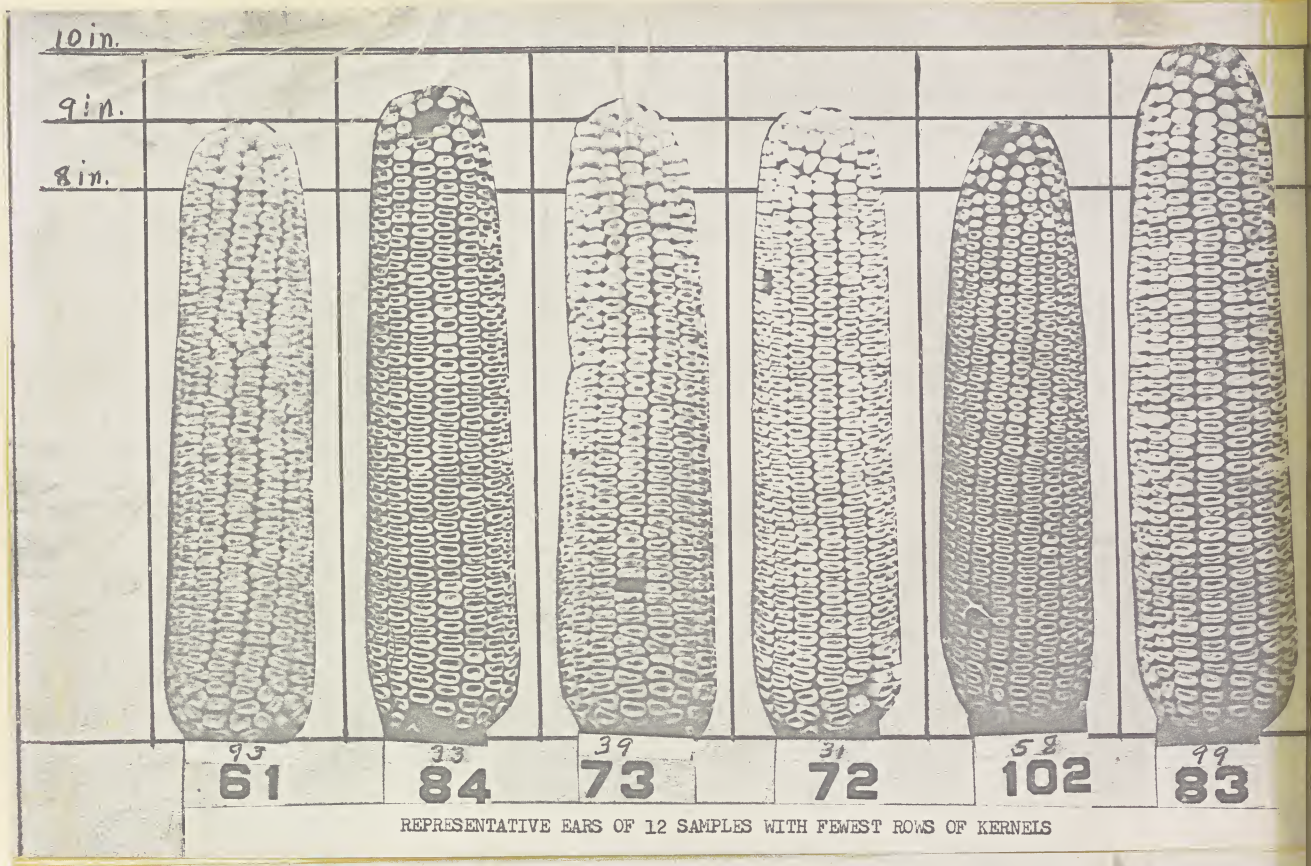
Diameter of ear

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples (●)	12 median group samples (▲)	12 decil group 10 samples (○)	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests																
Bushels per acre	71.7	72.4	71.0	High 78.1				▲	●	Median 71.7	○				Low 61.0	122–125
Percent of good corn	89.7	89.8	88.8	High 92.7					▲	● 89.8		○			Low 85.8	126–129
Percent of moisture	20.2	21.6	22.1	Low 17.9	●					▲ 21.4	○				High 24.9	130–133
Percent of shelled corn	85.8	85.2	85.9	High 87.3				○	●	85.8			▲		Low 84.5	134–137
Density of shelled corn	34.5	33.4	33.4	Heavy 35.6			●			34.2			▲	○	Light 32.4	138–141
Germination index	88.2	85.6	85.2	High 93.8				●		87.1	▲			○	Low 64.5	142–145
Disease index	75.0	76.2	68.8	Little 90.2					▲	● 75.7				○	Much 58.3	146–149
Weight of ears	11.40	12.60	14.13	Heavy 15.07 ○						▲ 12.75					● Light 10.35	150–153
Items observed by oldtime corn judges																
Density of ears	39.78	39.83	38.19	Heavy 42.03				● ▲		Median 39.54					○ Light 37.58	154–157
Kernel development	55.1	58.8	56.3	Good 78.6				▲		● 56.4 ○					Poor 38.3	158–161
Indentation index	43.5	41.7	64.0	Smooth 16.5					● ▲	44.7					○ Rough 87.3	162–165
Length of kernels	13.13	13.43	14.30	Long 15.72 ○					▲	13.41		●			Short 12.47	166–169
Width of kernels	8.02	8.10	7.84	Wide 9.01			▲	●		7.92	○				Narrow 7.12	170–173
Thickness of kernels	4.10	4.22	4.18	Thick 4.42					▲	4.21 ○			●		Thin 3.89	174–177
Length of ears	8.67	8.83	9.07	Long 9.67				○		▲ 8.96		●			Short 8.25	178–181
Diameter of ears	2.051	2.136	2.263	● Small 2.012					▲	2.137					Large 2.304 ○	182–185
No. of rows of kernels	17.1	18.1	19.5	Small 14.9	●			▲		18.3				○	Large 2.09	186–189
Color of shank index	68.2	68.8	68.0	White 86.7					● ▲	○ 67.7					Dark 36.7	190–193
Condition of shank index	37.9	4.23	37.8	Smooth 58.3					▲	● 38.4 ○					Rough 18.3	194–197
Variation index	7.2	7.1	6.7	Uniform 3.0			○			7.0	● ▲				Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



REPRESENTATIVE EARS OF 12 SAMPLES WITH FEWEST ROWS OF KERNELS

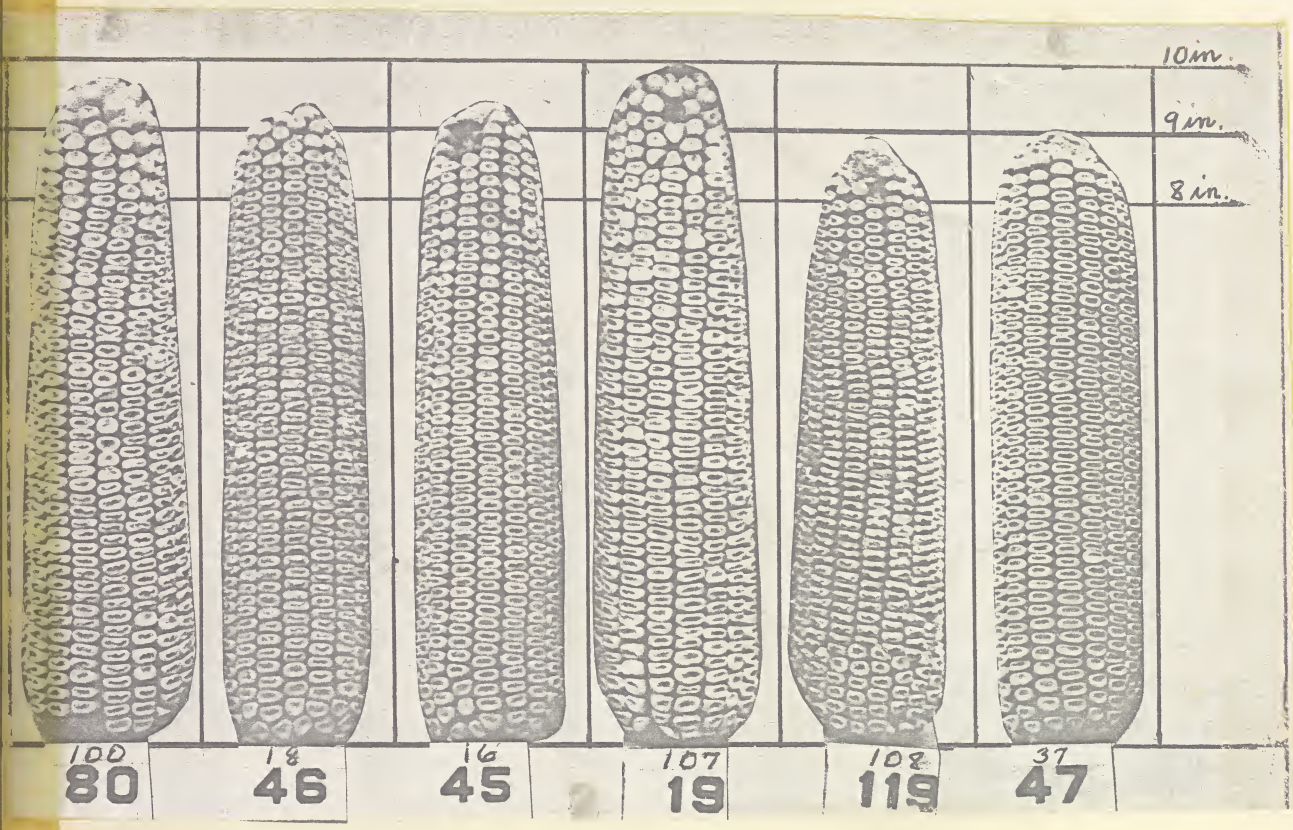
10 in.

NUMBER OF ROWS OF KERNELS

as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 188-189)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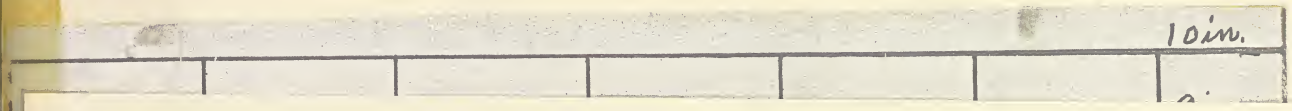
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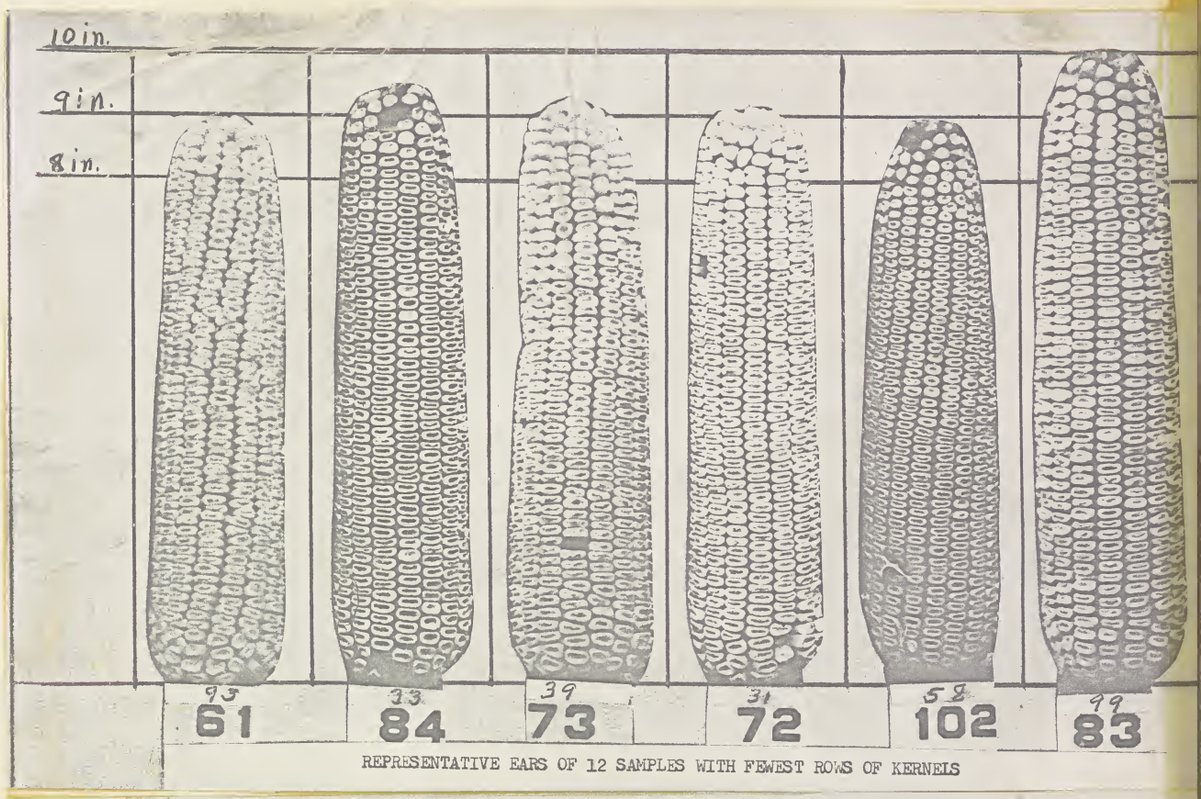
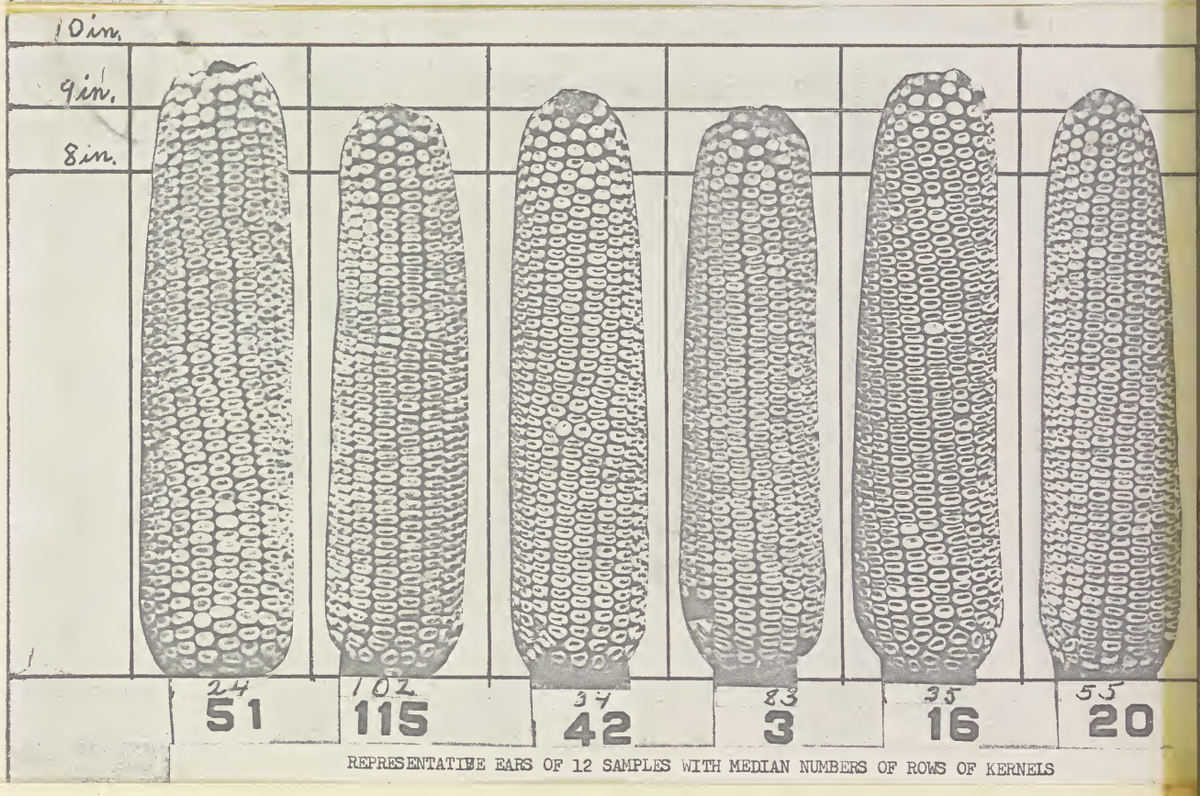
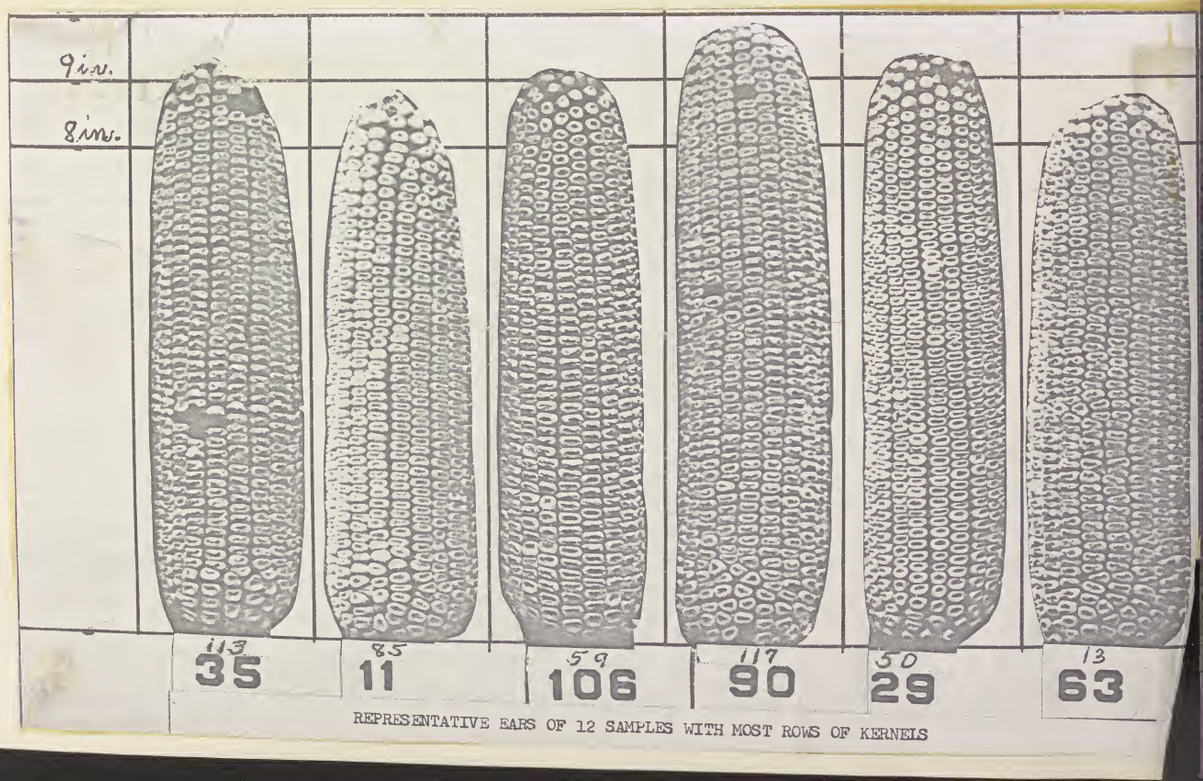


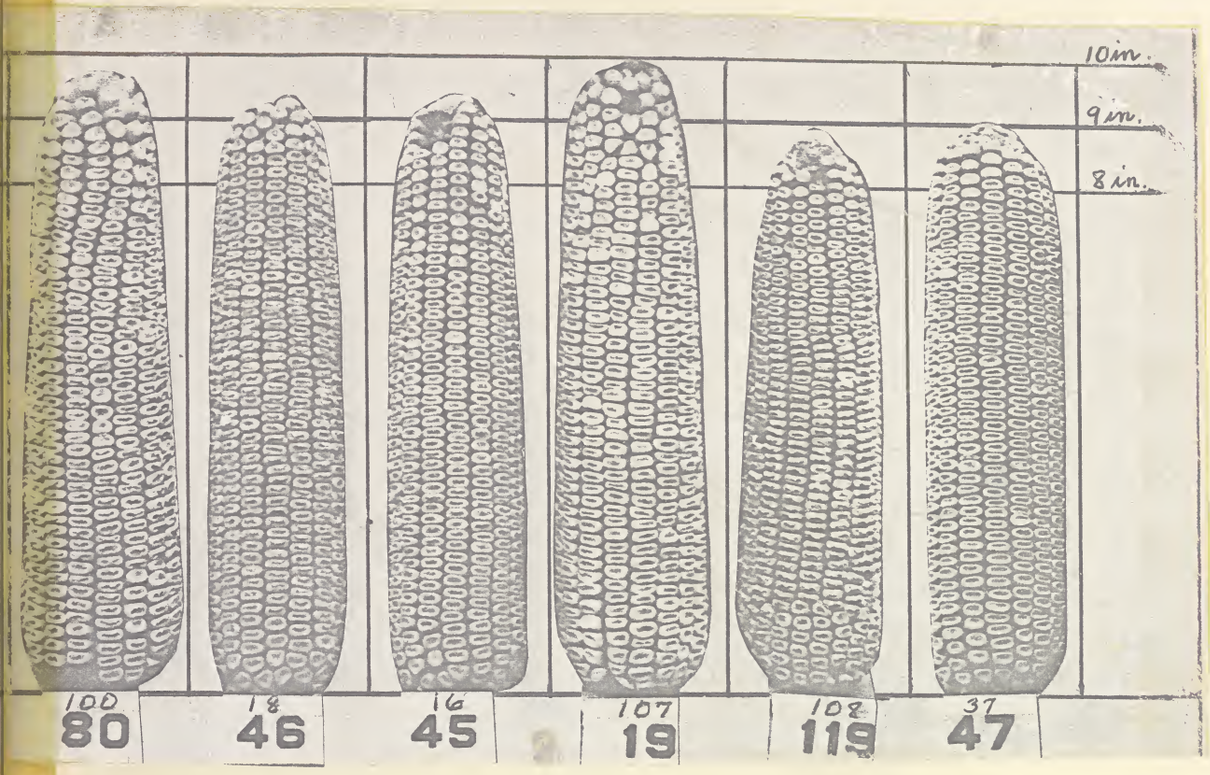
REPRESENTATIVE EARS OF 12 SAMPLES WITH FEWEST ROWS OF KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN NUMBERS OF ROWS OF KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MOST ROWS OF KERNELS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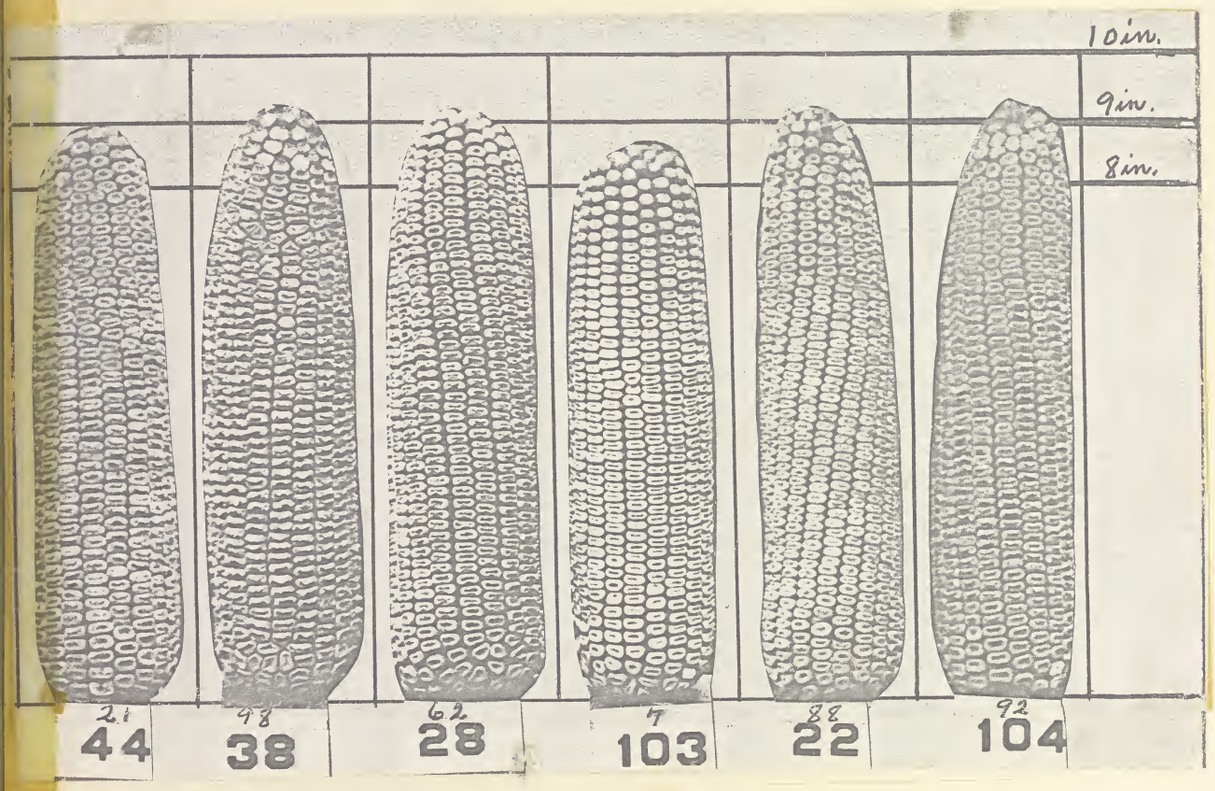
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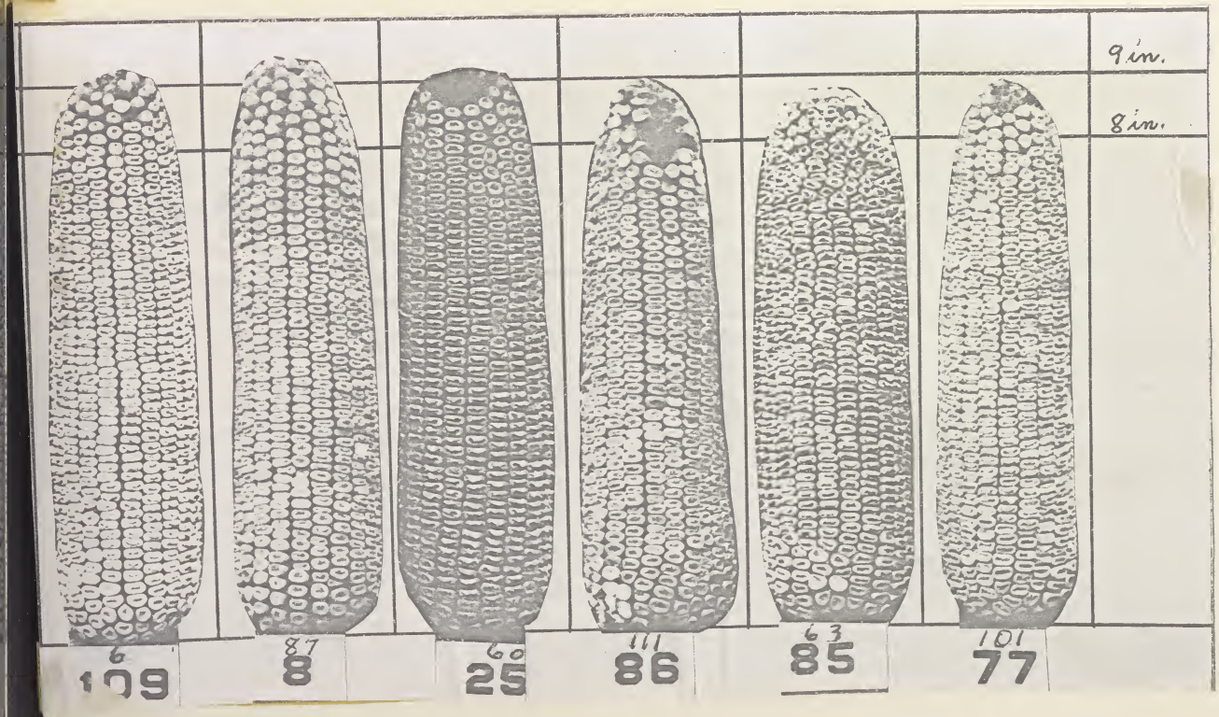
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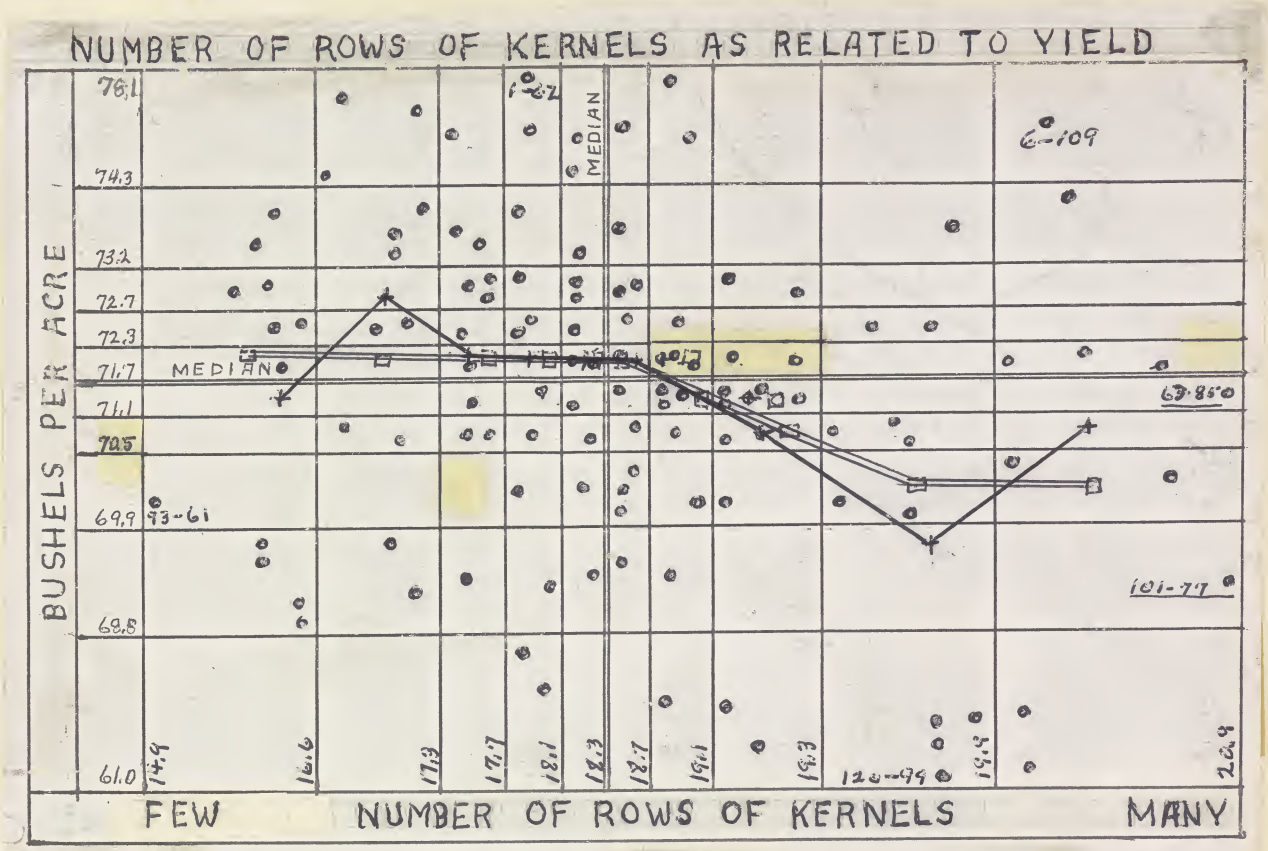


NUMBER OF ROWS OF KERNELS AS RELATED TO YIELD
AND TO THE OTHER EIGHTEEN DESCRIPTIVE ITEMS

The number of rows of kernels as used in this study was the average number on the ten representative ears of each farmer's seed that were saved each year.

The trend line for yield as shown above and the data on page 189 indicate that, in the middle of the cornbelt, strains of corn with eighteen rows of kernels usually had a yield advantage over strains that had more or less than eighteen rows.

It may well be noted that eight of the twelve high yielding samples had 16 to 18 rows of kernels and that nine of the 12 low yielding samples had 20 or more rows on most ears.

The fact that sample No.6-109, with an average of 20.1 rows of kernels per ear with some having 22 or more, was a sort of maverick among the high yielding samples shows clearly again that a field test was the only way of determining the productive value of seed corn.

Number of rows of kernels

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5 ‖ 6	7	8	9	10	Poorest or least favored	See pages of Vol. II
Items that required field or laboratory tests															
Bushels per acre	71.4	71.8	70.9	High 78.1	▲				Median ● 71.7	○				Low 61.0	122–125
Percent of good corn	90.0	90.3	88.8	High 92.7				▲	● 89.8		○			Low 85.8	126–129
Percent of moisture	20.8	21.6	22.0	Low 17.9				●	▲ 21.4	○				High 24.9	130–133
Percent of shelled corn	85.2	85.8	86.1	High 87.3			○		▲ 85.8			●		Low 84.5	134–137
Density of shelled corn	34.4	34.2	33.7	Heavy 35.6			●		▲ 34.2		○			Light 32.4	138–141
Germination index	85.5	87.1	87.5	High 93.8					▲ ○ 87.1	●				Low 64.5	142–145
Disease index	77.2	80.2	74.2	Little 90.2			▲	●	75.7	○				Much 58.3	146–149
Weight of ears	12.12	12.63	13.59	Heavy 15.07		○			▲ 12.75		●			Light 10.35	150–153
Items observed by oldtime corn judges															
Density of ears	39.28	39.89	39.11	Heavy 42.03				▲	Median ● 39.54	●	○			Light 37.58	154–157
Kernel development	59.6	58.1	54.5	Good 78.6				●	▲ 56.4	○				Poor 38.3	158–161
Indentation index	45.2	44.2	57.9	Smooth 16.5					▲ ● 44.7			○		Rough 87.3	162–165
Length of kernels	13.30	13.37	13.91	Long 15.72		○			● ▲ 13.41					Short 12.47	166–169
Width of kernels	8.56	7.85	7.55	Wide ● 9.01					▲ 7.92					Narrow ○ 7.12	170–173
Thickness of kernels	4.17	4.21	4.14	Thick 4.42					▲ 4.21	●	○			Thin 3.89	174–177
Length of ears	8.92	8.92	8.93	Long 9.67					● ▲ 8.96 ○					Short 8.25	178–181
Diameter of ears	2.097	2.124	2.225	Small 2.012			●	▲	2.137				○	Large 2.304	182–185
No. of rows of kernels	16.2	18.3	20.3	Small ● 14.9					▲ 18.3					Large 2.09 ○	186–189
Color of shank index	76.9	67.5	61.3	White 86.7	●				▲ 67.7		○			Dark 36.7	190–193
Condition of shank index	38.9	40.0	39.7	Smooth 58.3					● ▲ ○ 38.4					Rough 18.3	194–197
Variation index	6.8	7.2	7.4	Uniform 3.0			●		7.0	▲ ○				Uneven 11.0	198–201

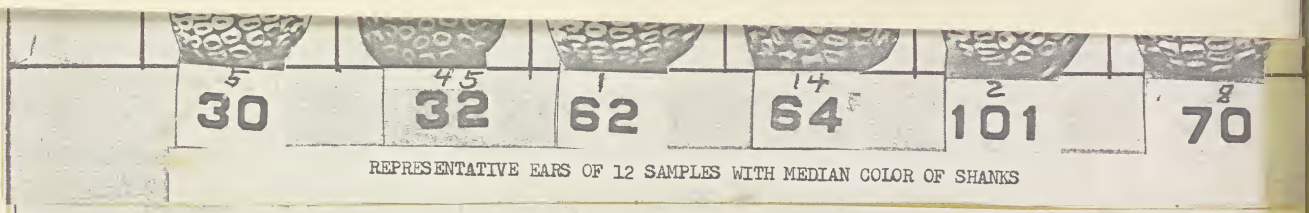
★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

COLOR OF SHANK

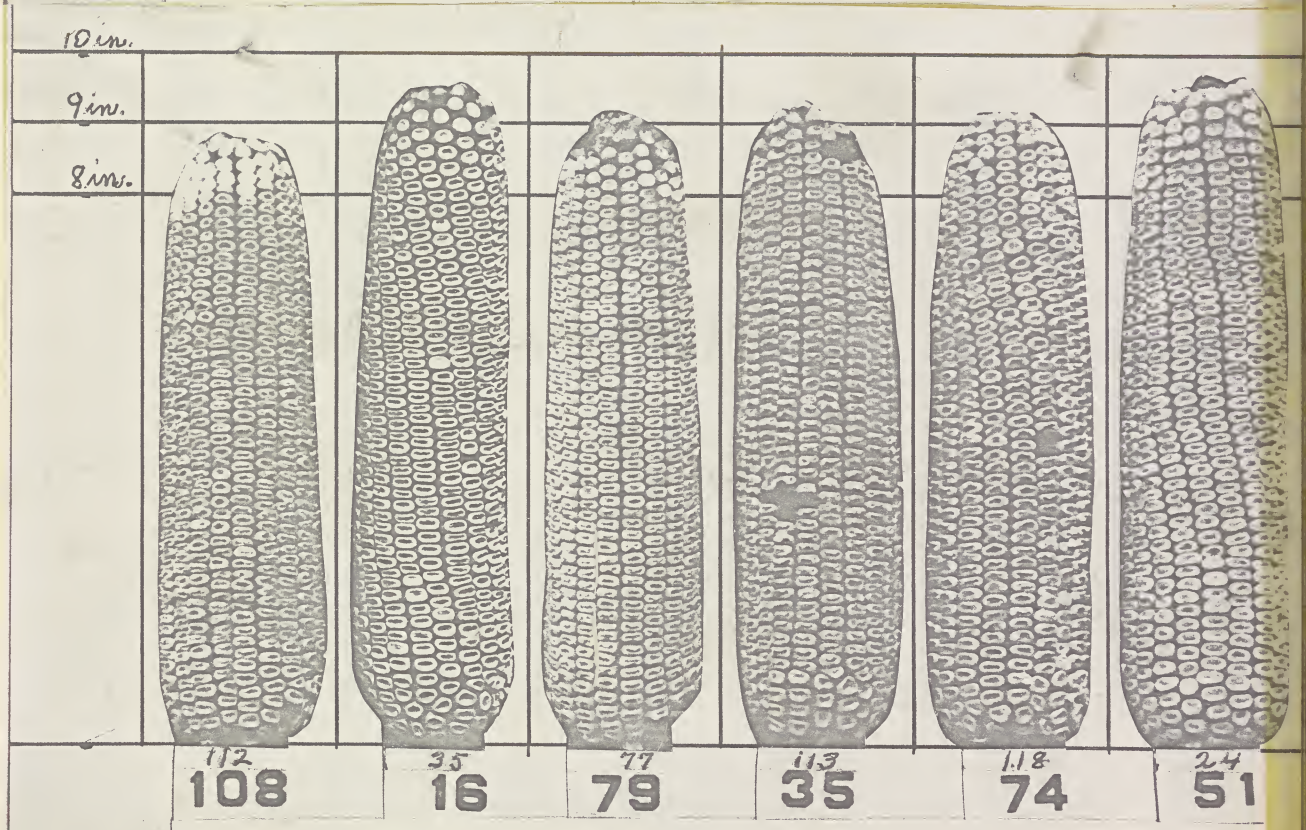
as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

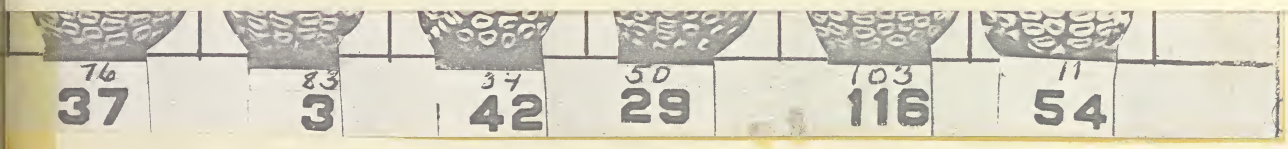
(See pages 192-193)



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN COLOR OF SHANKS



REPRESENTATIVE EARS OF 12 SAMPLES WITH DARKEST SHANKS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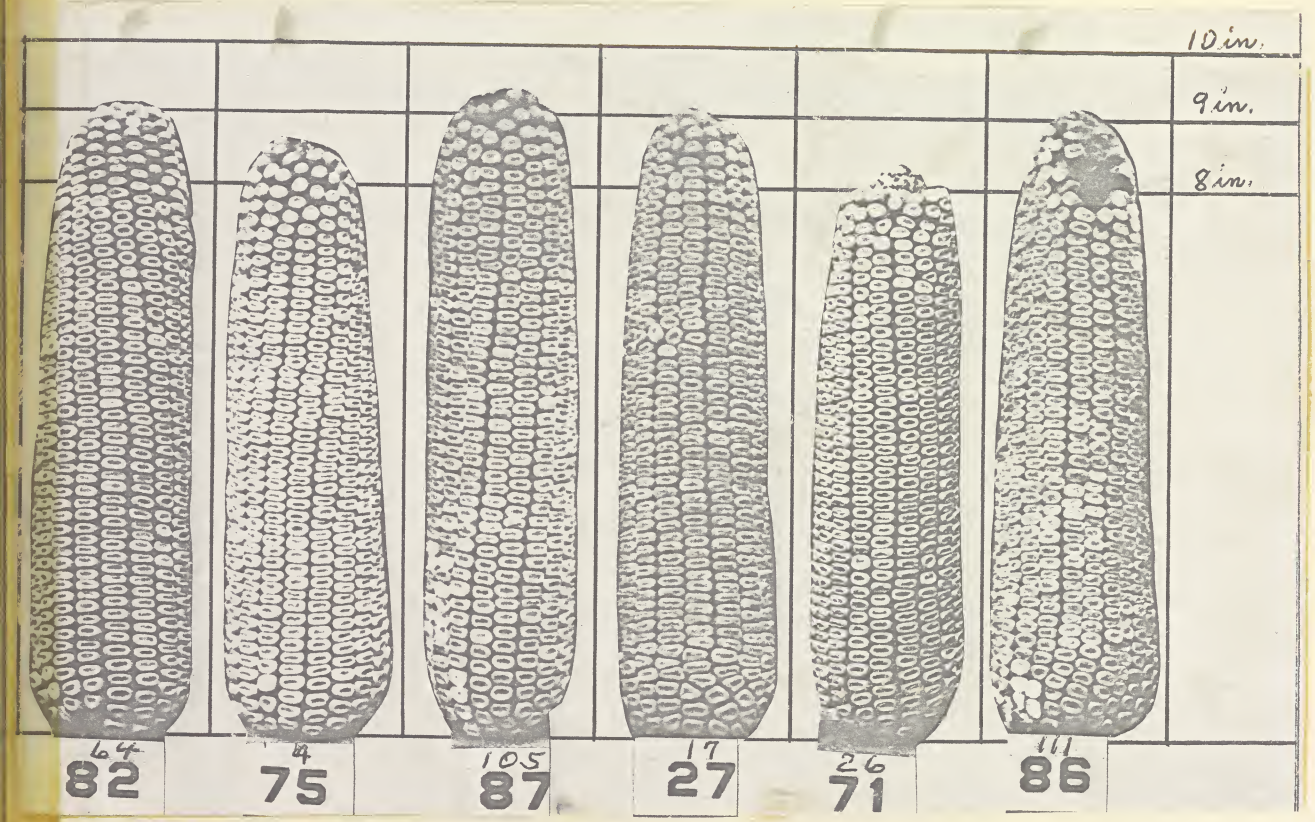
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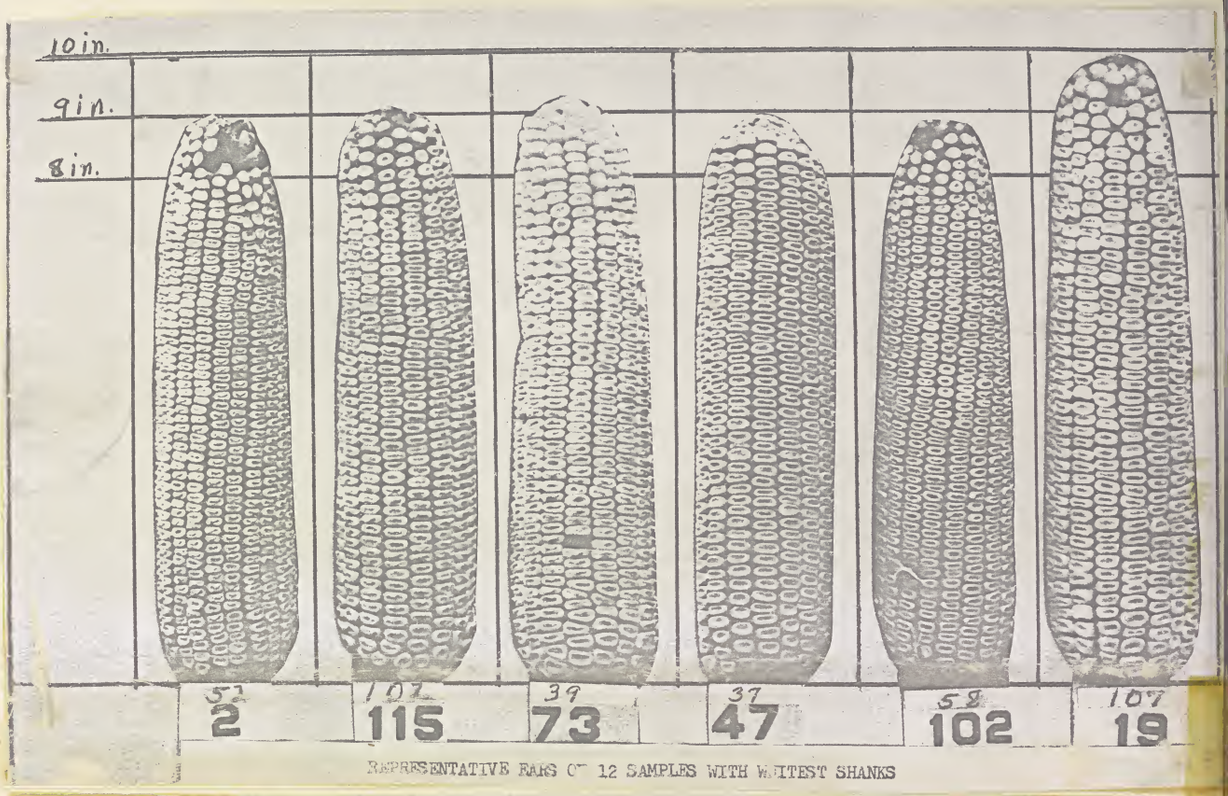
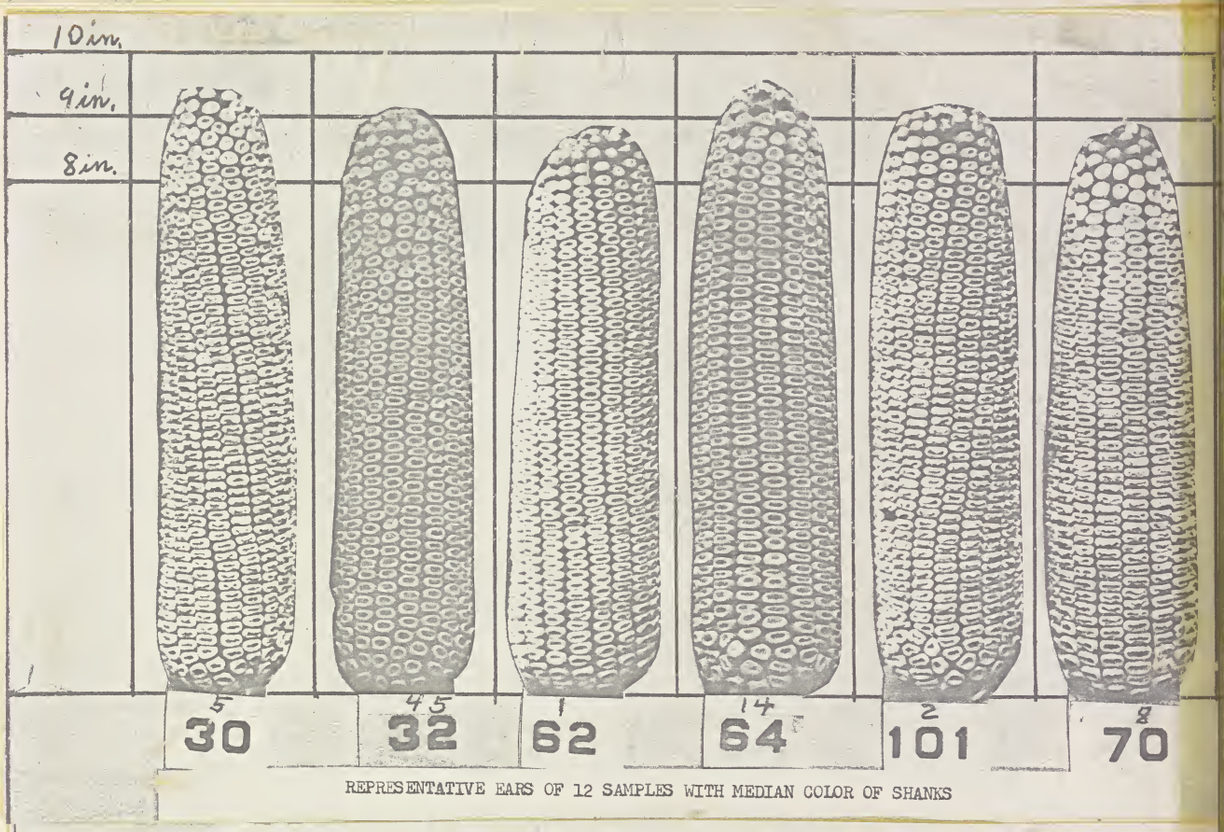
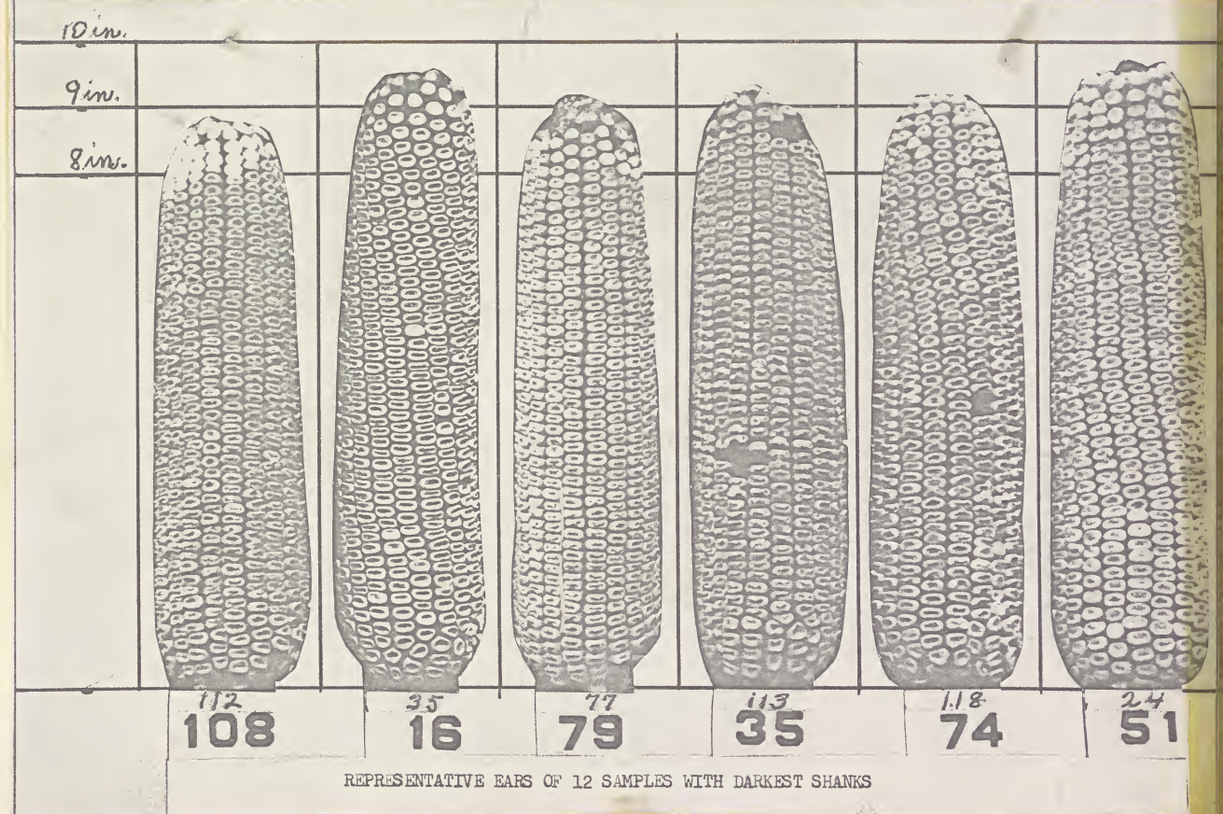


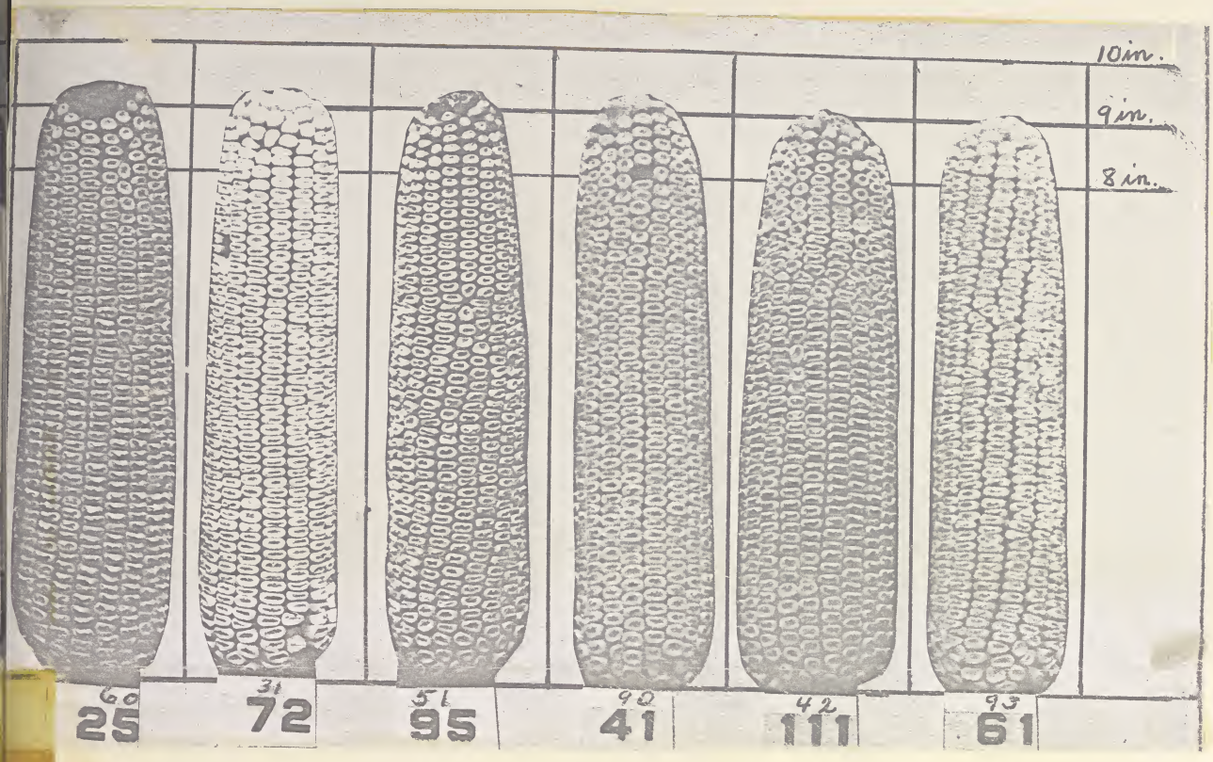
REPRESENTATIVE EARS OF 12 SAMPLES WITH WHITEST SHANKS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN COLOR OF SHANKS



REPRESENTATIVE EARS OF 12 SAMPLES WITH DARKEST SHANKS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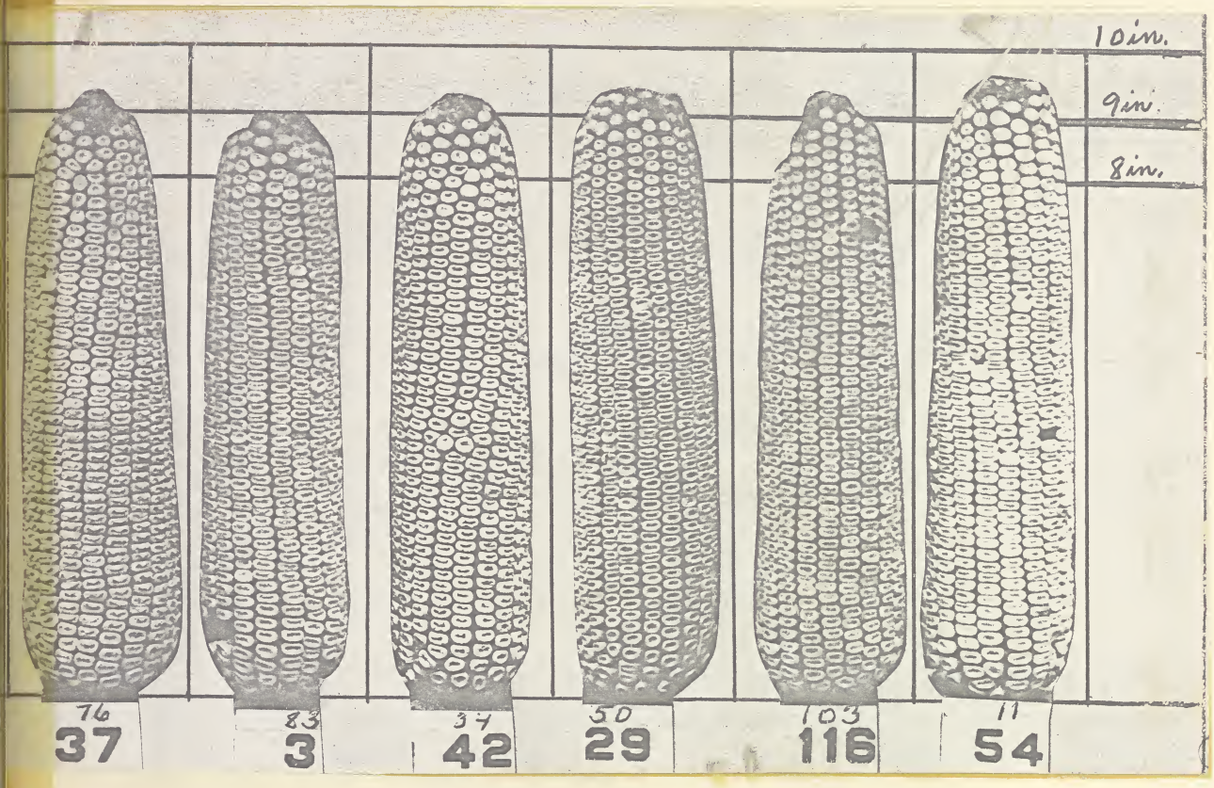
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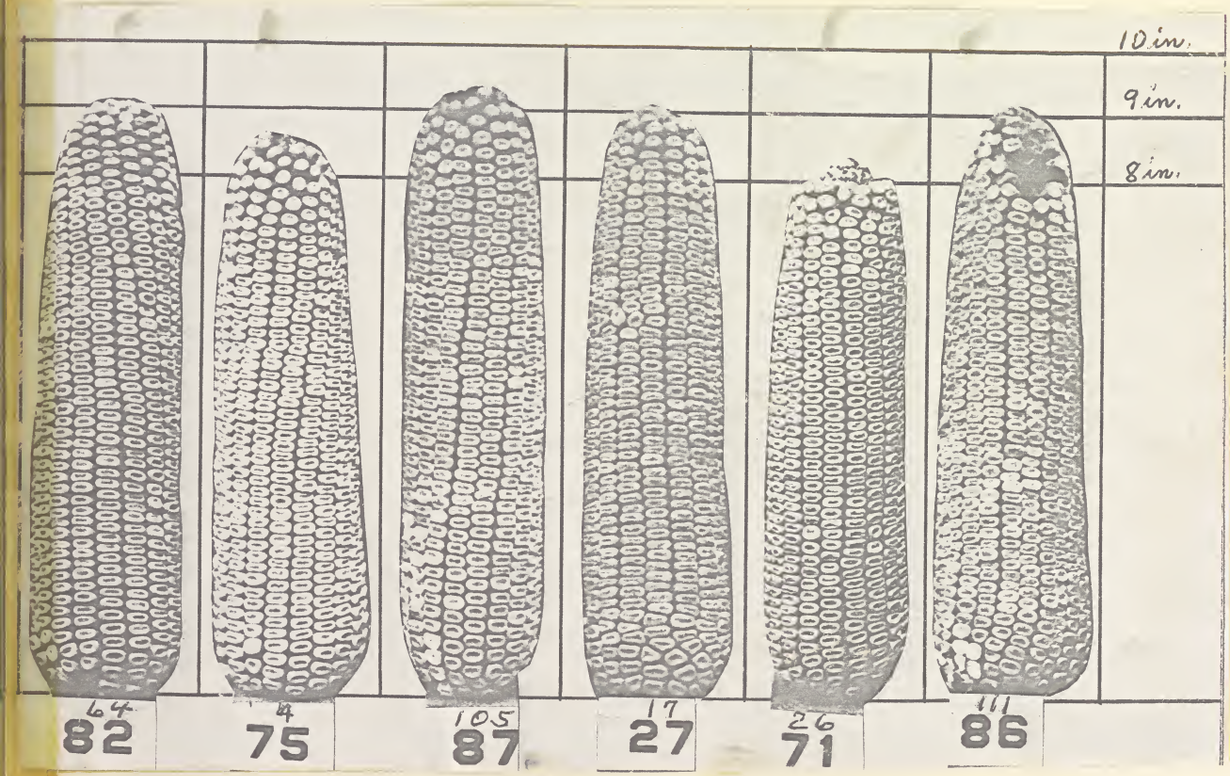
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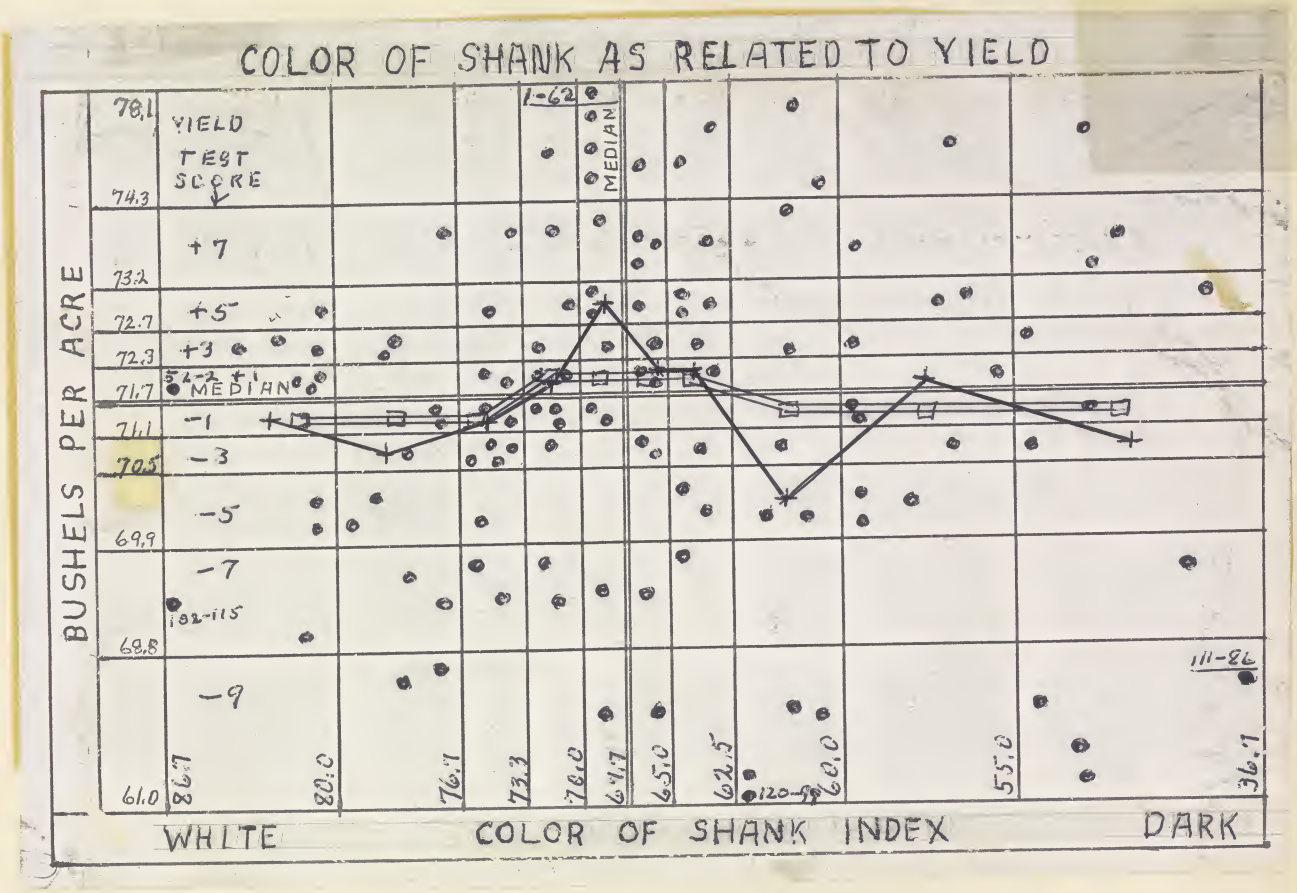


multiplied by ten

COLOR OF SHANK INDEX AS RELATED TO YIELD AND TO THE OTHER EIGHTEEN DESCRIPTIVE ITEMS

The color of shank index was developed from a study of the representative ten-ear samples of each farmer's seed each year. The numbers of ears with white, medium-white and dark shanks were recorded. The index for each sample was calculated by adding the number of white-shank ears to the number of medium-white samples multiplied by five. This gave an index of 100 to a sample all of those ears had white shanks and an index of 0 to one on which all shanks were dark.

Since all samples had accumulated much dust while hanging in the Farm Bureau office for two to four years before the study was made it was very difficult to grade some samples on color of shanks. The author was less satisfied with the accuracy of this measure than with any other descriptive item.

Notice on page 193 that samples having white shanks tended to have smooth shanks, relative freedom from seedling disease and better than average kernel development. On the other hand, note that samples with dark shanks had relatively rough shanks, more seedling disease and poor kernel development.

Color of shank

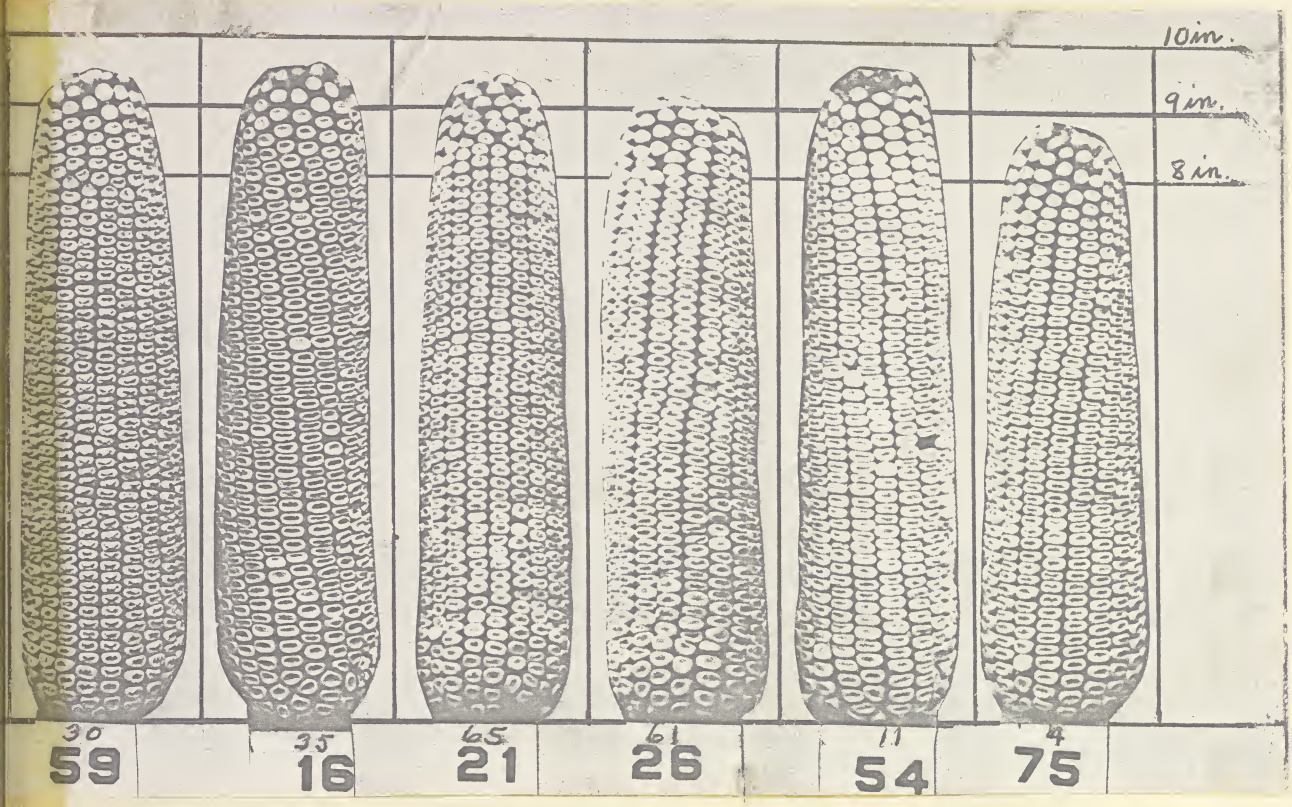
as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored 1	2	3	4	5	6	7	8	9	Poorest or least favored 10	See pages of Vo 1.II
Items that required field or laboratory tests														
Bushels per acre	71.4	73.4	71.0	High 78.1	▲			Median ● 71.7		○			Low 61.0	122–125
Percent of good corn	89.4	90.2	89.5	High 92.7			▲	● 89.8	○				Low 85.8	126–129
Percent of moisture	20.9	21.2	21.1	Low 17.9			●	○	▲ 21.4				High 24.9	130–133
Percent of shelled corn	85.5	86.0	85.7	High 87.3			▲		● 85.8	○			Low 84.5	134–137
Density of shelled corn	34.1	34.5	34.4	Heavy 35.6		▲	○		● 34.2				Light 32.4	138–141
Germination index	85.6	86.4	87.8	High 93.8				●	○ 87.1	▲			Low 64.5	142–145
Disease index	75.7	73.4	73.9	Little 90.2				●	75.7	▲ ○			Much 58.3	146–149
Weight of ears	12.39	12.80	12.65	Heavy 15.07				▲	12.75 ○	●			Light 10.35	150–153
Items observed by oldtime corn judges														
Density of ears	39.22	40.06	39.82	Heavy 42.03		▲	○		Median 39.54	●			Light 37.58	154–157
Kernel development	60.5	62.4	56.3	Good 78.6		▲	●		56.4 ○				Poor 38.3	158–161
Indentation index	46.3	43.1	47.2	Smooth 16.5				▲	44.7 ○	●			Rough 87.3	162–165
Length of kernels	13.44	13.38	13.45	Long 15.72				●	○ 13.41	▲			Short 12.47	166–169
Width of kernels	8.26	7.91	7.88	Wide 9.01		●			.92	▲ ○			Narrow 7.12	170–173
Thickness of kernels	4.19	4.23	4.18	Thick 4.42			▲		4.21 ○	●			Thin 3.89	174–177
Length of ears	8.80	8.98	8.82	Long 9.67				▲	8.96	● ○			Short 8.25	178–181
Diameter of ears	2.136	2.127	2.141	Small 2.012				● ▲	2.137 ○				Large 2.304	182–185
No. of rows of kernels	17.5	18.2	18.6	Small 14.9		●			▲ 18.3 ○				Large 2.09	186–189
Color of shank index	82.0	67.2	49.5	● White 86.7					▲ 67.7				Dark 36.7 ○	190–193
Condition of shank index	41.9	45.7	35.1	Smooth 58.3		▲	●		38.4	○			Rough 18.3	194–197
Variation index	7.1	7.0	7.9	Uniform 3.0				▲	7.0	● ○			Uneven 11.0	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

REPRESENTATIVE EARS OF 12 SAMPLES WITH SMOOTHEST SHANKS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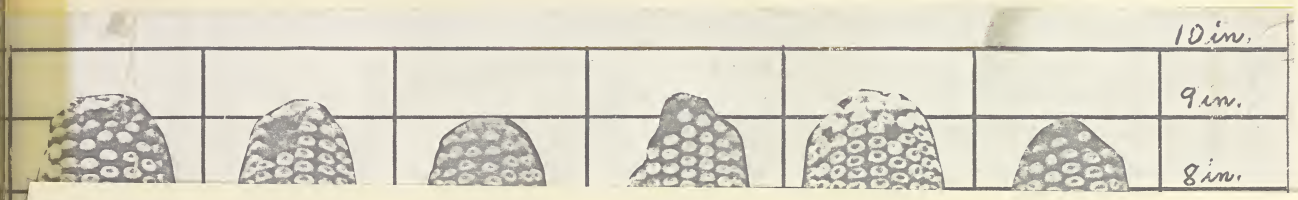
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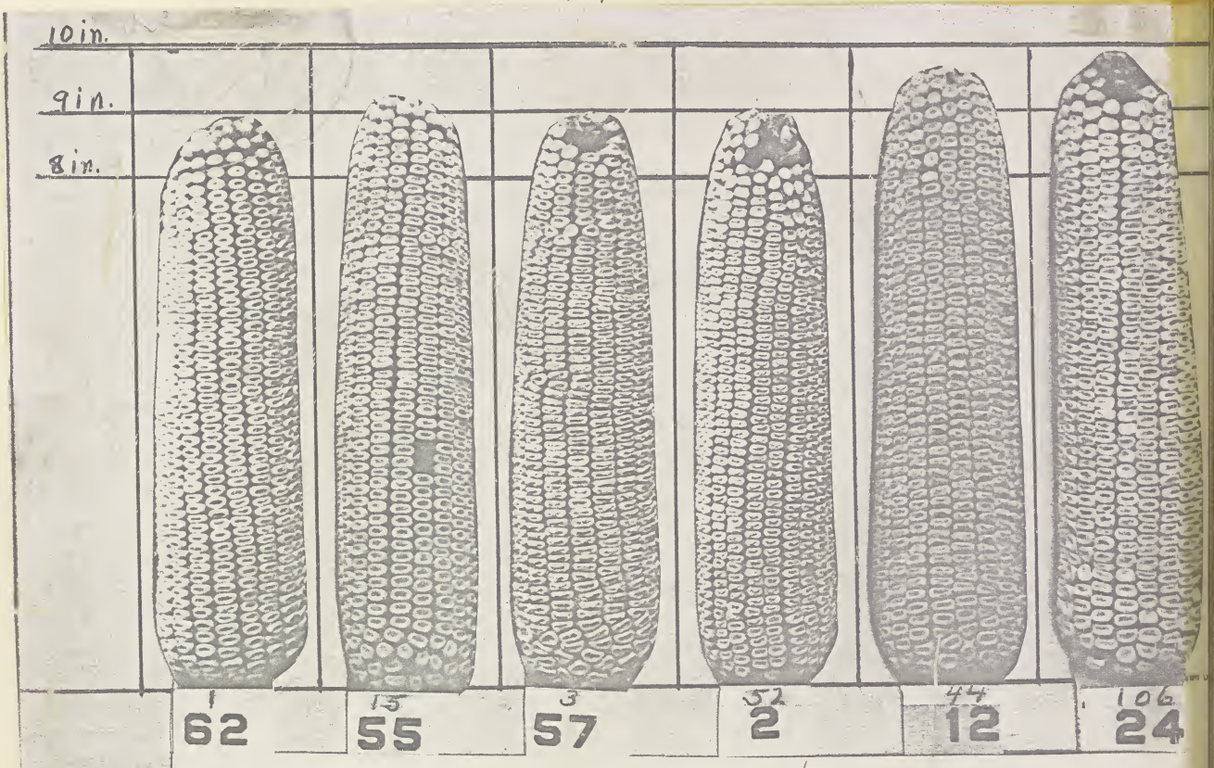
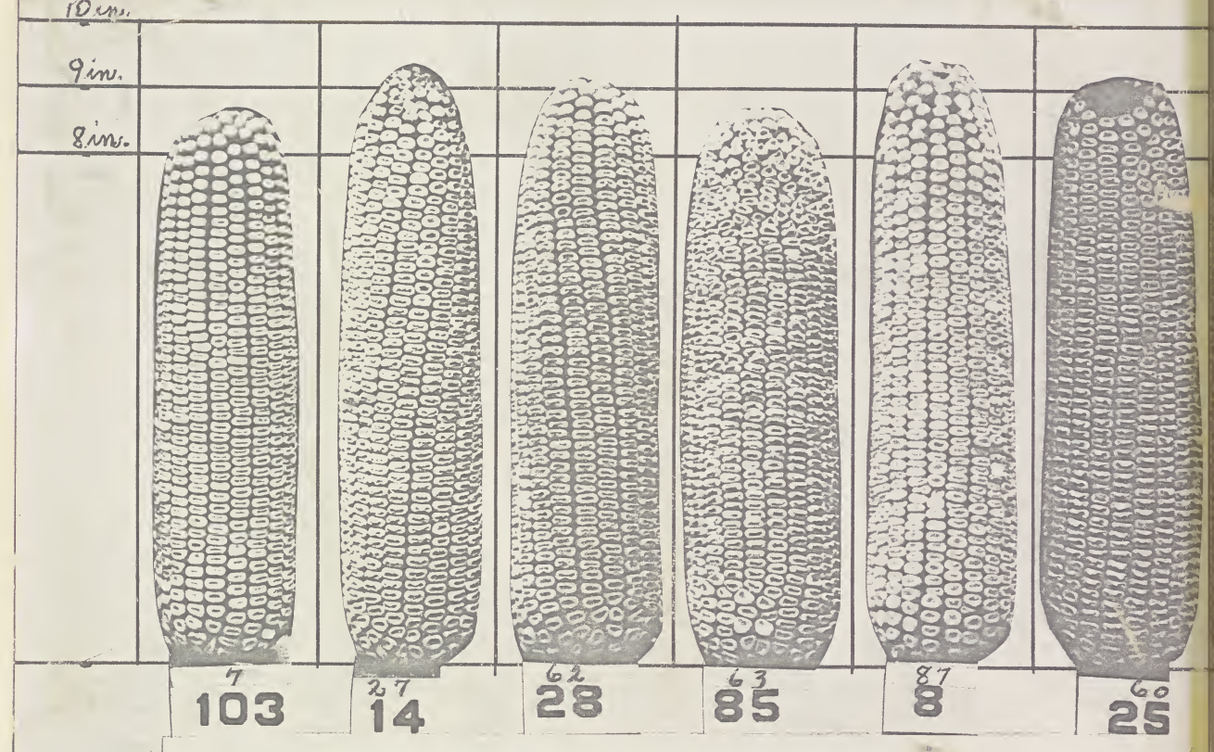
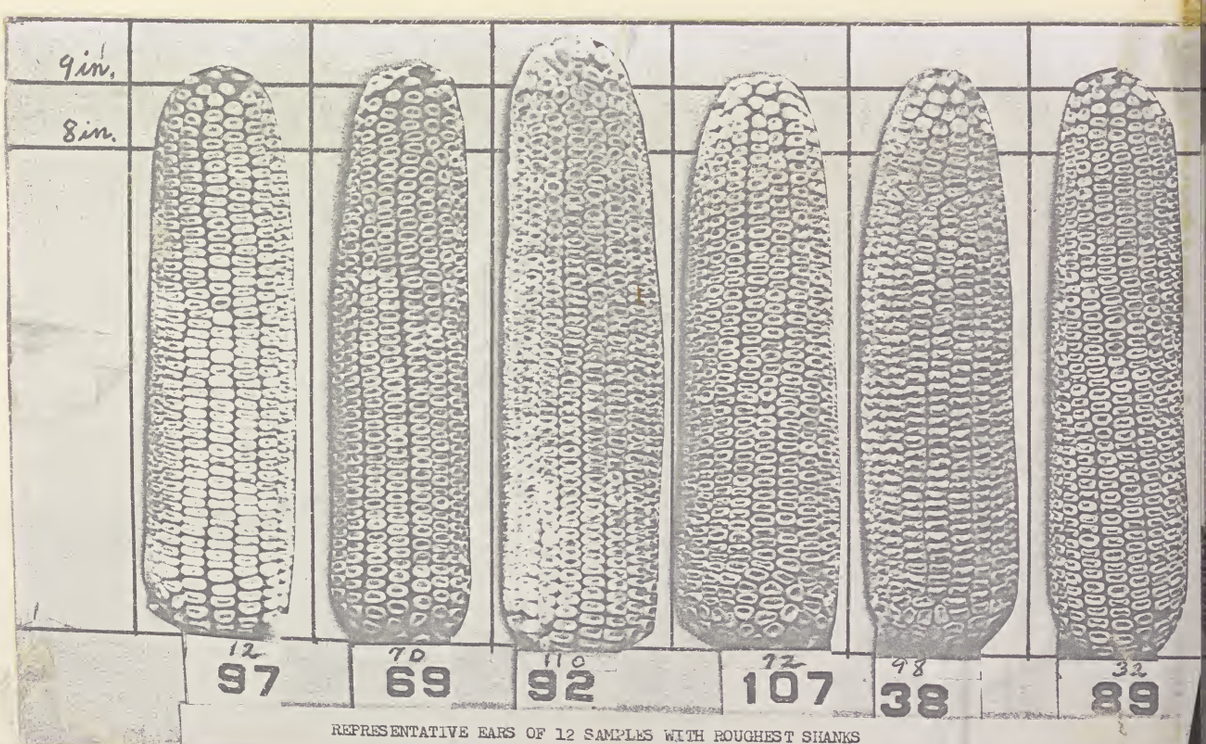


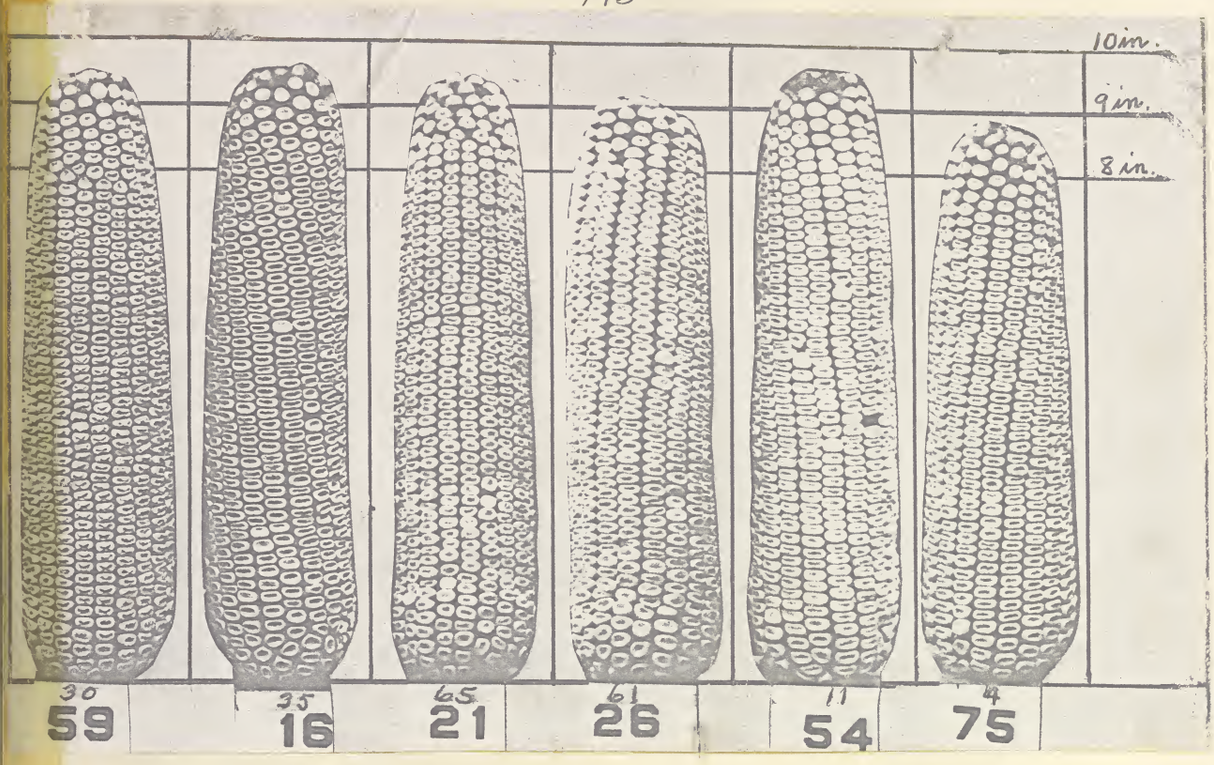
REPRESENTATIVE EARS OF 12 SAMPLES WITH SMOOTHEST SHANKS



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN SMOOTH SHANKS



REPRESENTATIVE EARS OF 12 SAMPLES WITH ROUGHEST SHANKS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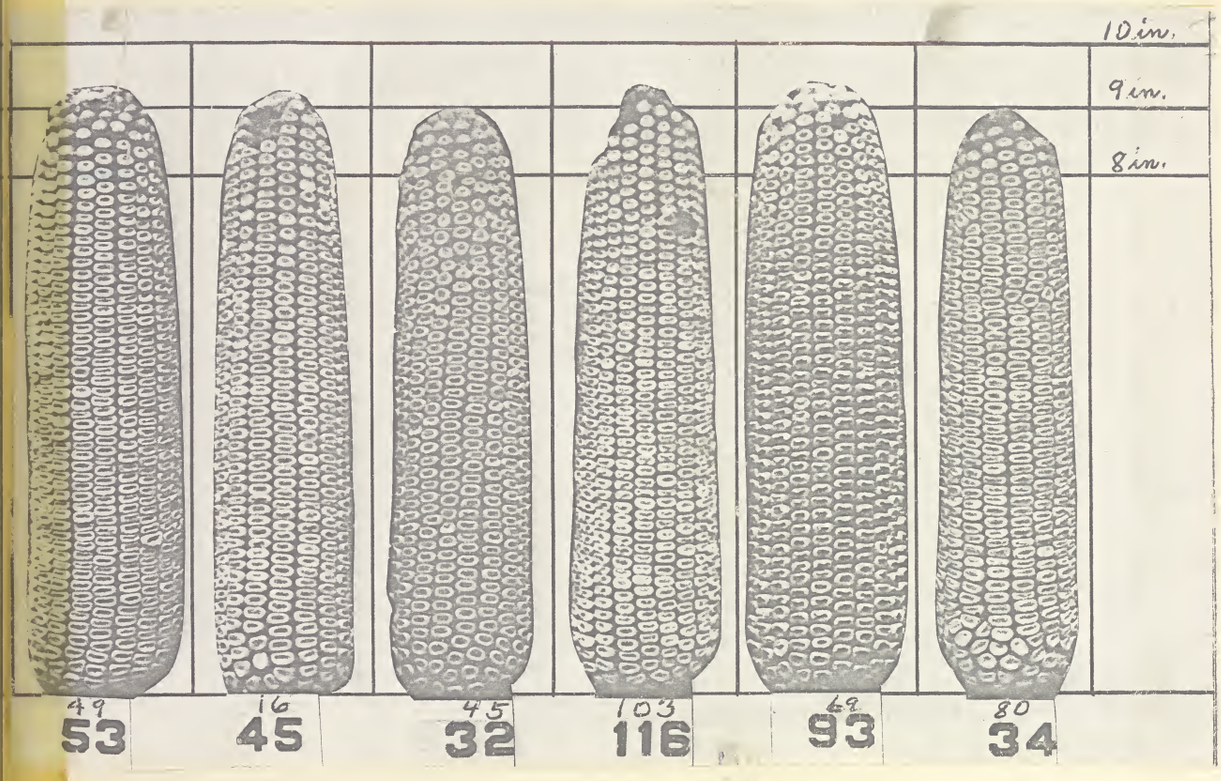
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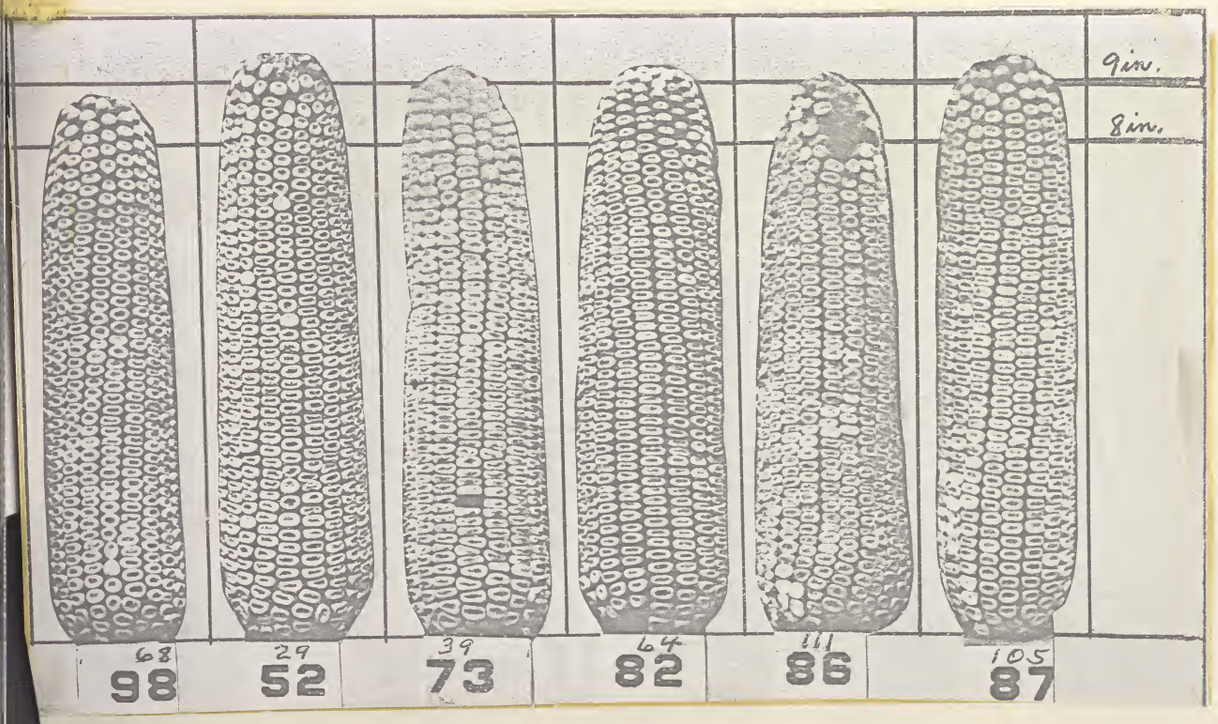
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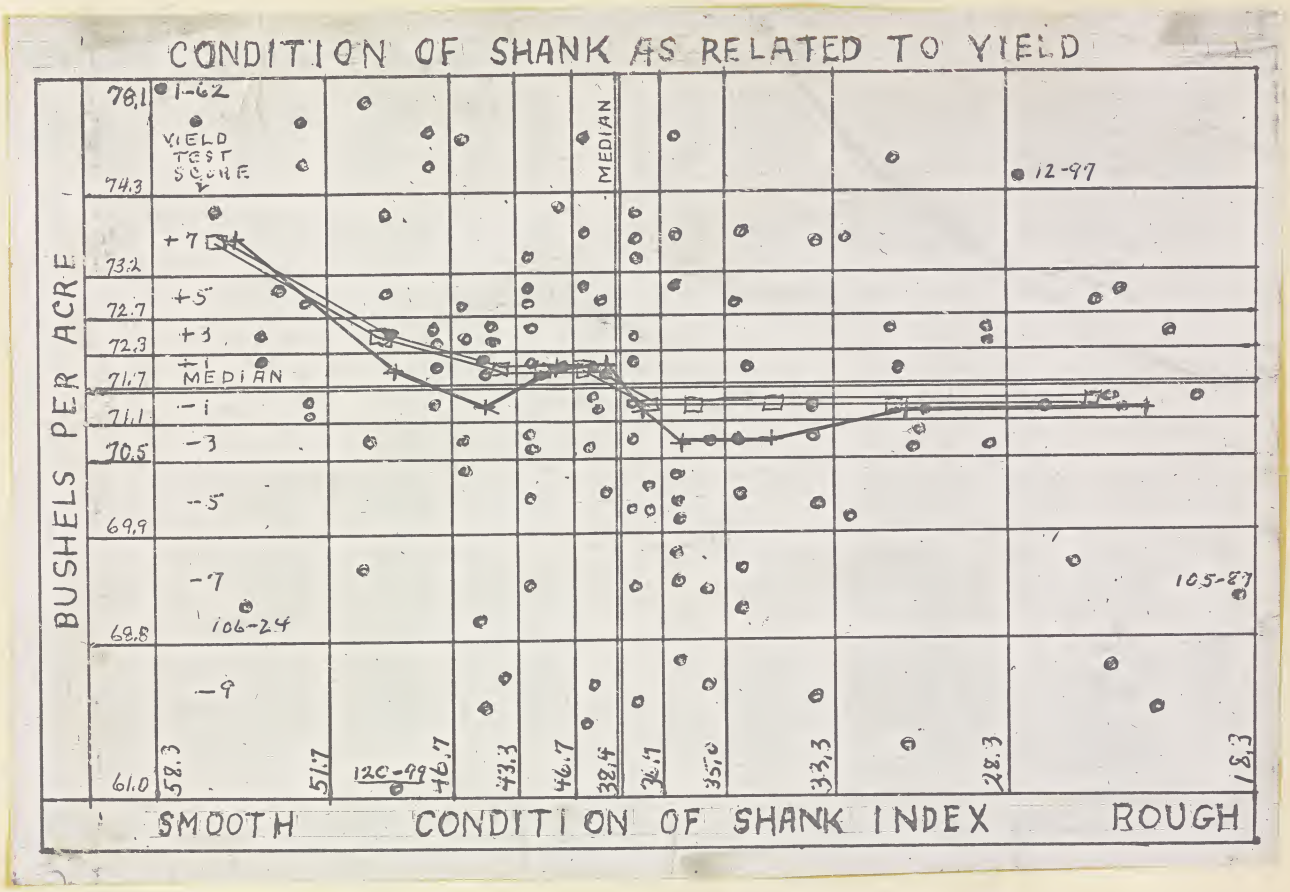


CONDITION OF SHANK INDEX AS RELATED TO YIELD
AND TO THE OTHER EIGHTEEN DESCRIPTIVE ITEMS

The condition of shank index was determined at the same time and in the same manner as the color of shank index. The index was determined by adding to the number of ears with smooth shanks multiplied by ten the number on medium-smooth shanks multiplied by five. This gave a condition-of-shank index of 100 to a sample all of whose ears had smooth shanks and an index of 0 to a sample with only dark shanks.

The chart on this page and the data on page 197 indicate a very definite advantage in yield of samples having smooth shanks. This study shows that the selection of seed ears with smooth shanks was a most useful way of selection high yielding seed.

The notable exception of sample No.12-97 with its high yield and rough shanks and sample No.106-24 with its smooth shanks and low yield showsagain that the use of field tests were essential in selecting open pollinated seed corn.

This relation of color and condition of shanks,seedling diseases,and kernel development to yield and quality of crop was a most important idea incorporated into the Illinois Utility Score Card that was first used in the Iowa State Show at Galesburg in 1920. Sample No.15-55 of this Woodford County Corn Yield Test was the first prize winner in that show. Notice on page 15 that the winning sample,No.15-55,was among the best of all 120 samples in density of ear,kernel development and,in color and condition of shank.

Condition of shank

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5 ‖ 6	7	8	9	10	Poorest or least favored	See pages of Vol.II
Items that required field or laboratory tests															
Bushels per acre	73.4	71.4	71.1	High 78.1	●				▲ Median 71.7 ○					Low 61.0	122–125
Percent of good corn	89.8	89.3	89.9	High 92.7					● ○ 89.8	▲				Low 85.8	126–129
Percent of moisture	21.6	21.5	21.3	Low 17.9					● ▲ ○ 21.4					High 24.9	130–133
Percent of shelled corn	85.8	86.0	85.7	High 87.3				▲	● 85.8 ○					Low 84.5	134–137
Density of shelled corn	34.5	33.8	34.1	Heavy 35.6			●		34.2 ○		▲			Light 32.4	138–141
Germination index	87.4	87.0	86.6	High 93.8					● ▲ 87.1 ○					Low 64.5	142–145
Disease index	78.1	76.5	74.0	Little 90.2				●	▲ 75.7	○				Much 58.3	146–149
Weight of ears	12.81	12.92	12.88	Heavy 15.07					● ▲ ○ 12.75					Light 10.55	150–153
Items observed by oldtime corn judges															
Density of ears	40.43	39.21	39.41	Heavy 42.03	●				Median 39.54 ○	▲				Light 37.58	154–157
Kernel development	60.5	55.9	56.2	Good 78.6				●	56.4 ▲ ○					Poor 38.3	159–161
Indentation index	39.8	52.1	48.2	Smooth 16.5				●	44.7 ○		▲			Rough 87.3	162–165
Length of kernels	13.41	13.68	13.48	Long 15.72			▲		● ○ 13.41					Short 12.47	166–169
Width of kernels	7.96	7.92	8.06	Wide 9.01				○	● ▲ 7.92					Narrow 7.12	170–173
Thickness of kernels	4.21	4.22	4.24	Thick 4.42				○	● ▲ 4.21					Thin 3.89	174–177
Length of ears	8.97	8.92	8.95	Long 9.67					● 8.96 ▲ ○					Short 8.25	178–181
Diameter of ears	2.121	2.169	2.156	Small 2.012				●	2.137	○	▲			Large 2.304	182–185
No. of rows of kernels	18.1	18.7	18.3	Small 14.9				●	○ 18.3 ▲					Large 2.09	186–189
Color of shank index	68.8	69.3	62.4	White 86.7					● ▲ 67.7		○			Dark 36.7	190–193
Condition of shank index	53.6	38.9	23.6	● Smooth 58.3					▲ 38.4					Rough 18.3 ○	194–197
Variation index	6.8	7.4	7.7	Uniform 3.0	●				7.0	▲ ○				Uneven 11.0	198–201

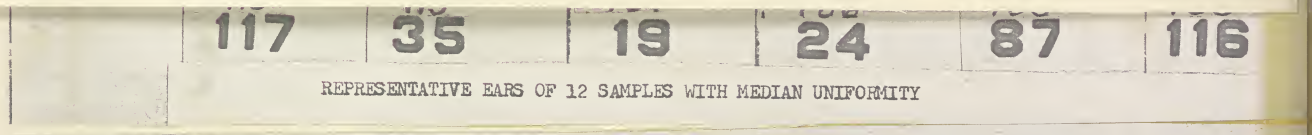
★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

VARIATION VS UNIFORMITY
in
INDENTATION AND NUMBER OF ROWS OF KERNELS

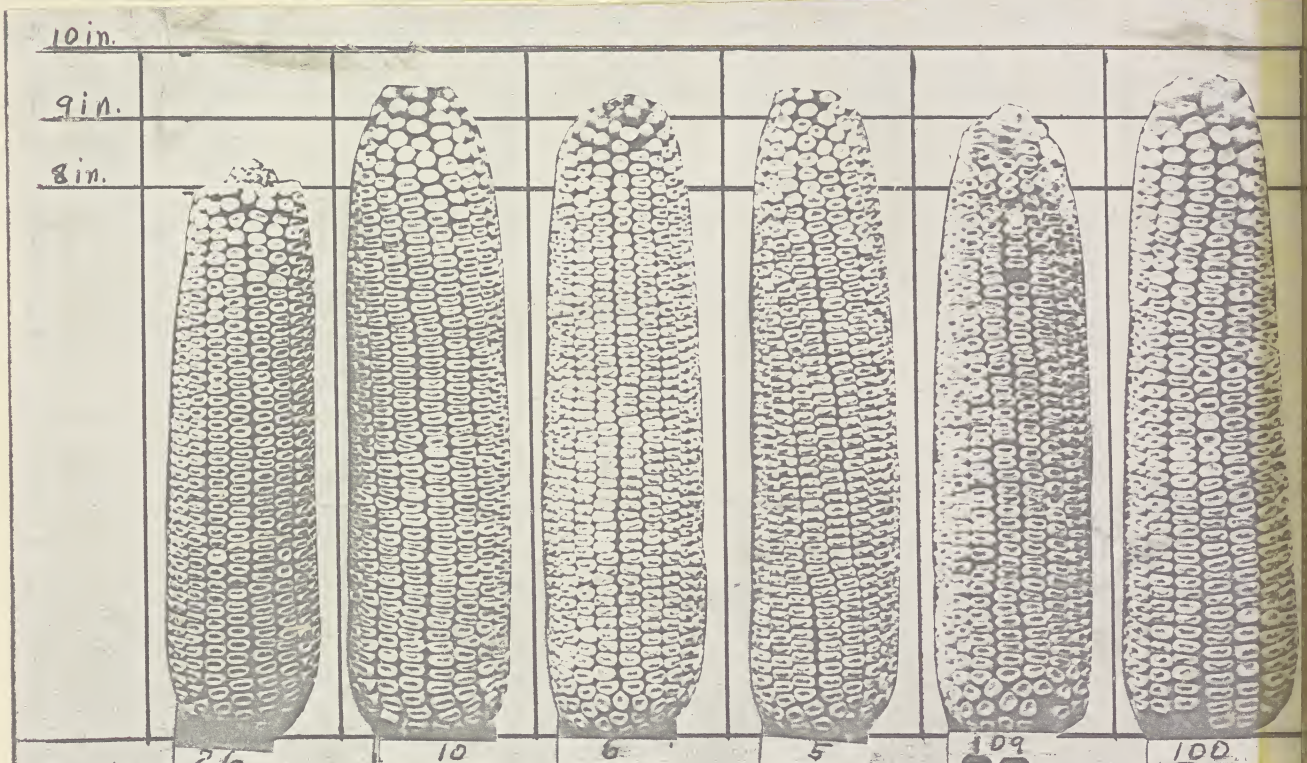
as related to

YIELD AND 18 OTHER DESCRIPTIVE ITEMS

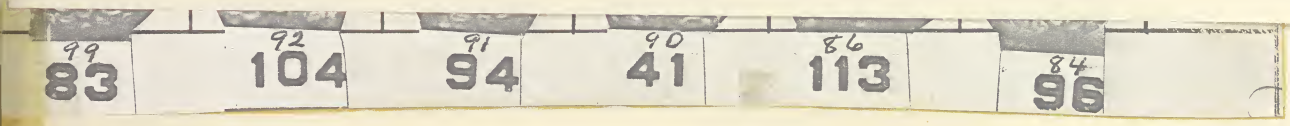
(See pages 200-201)



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN UNIFORMITY



REPRESENTATIVE EARS OF 12 SAMPLES WITH LEAST UNIFORMITY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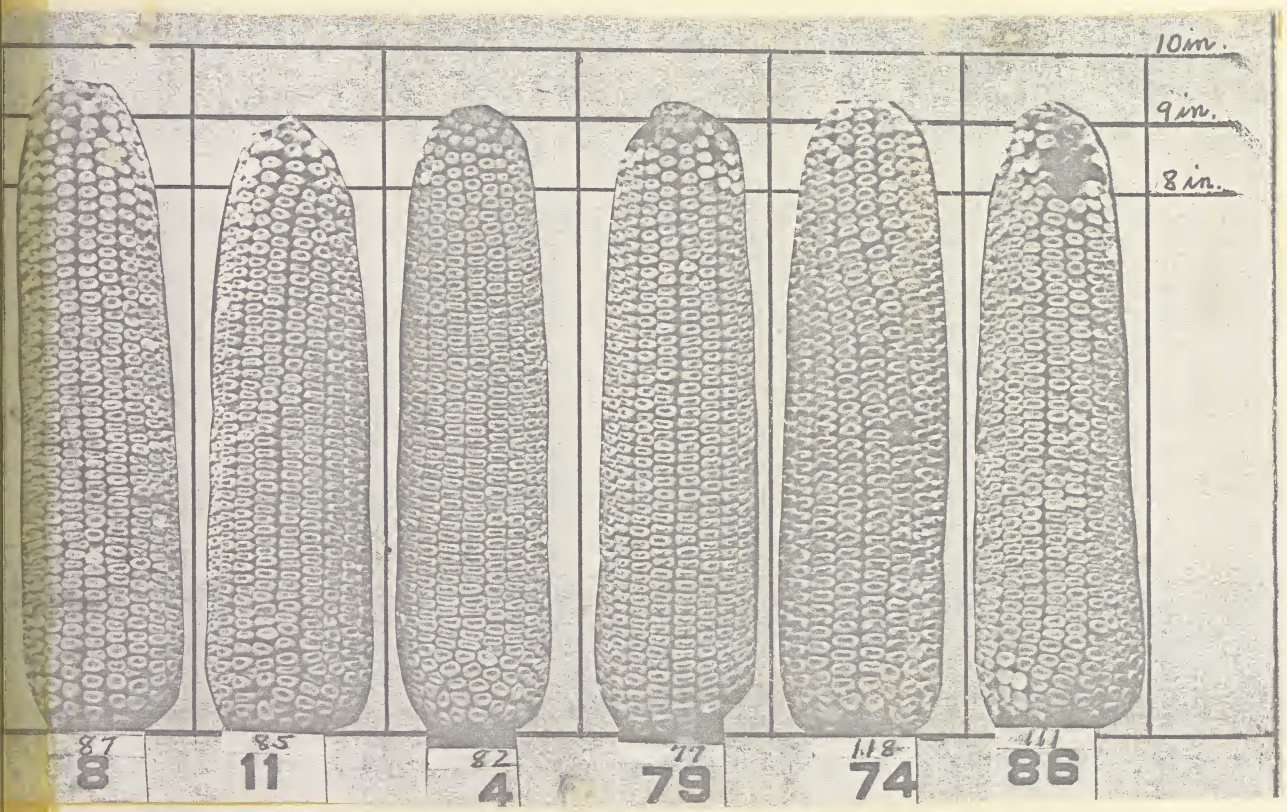
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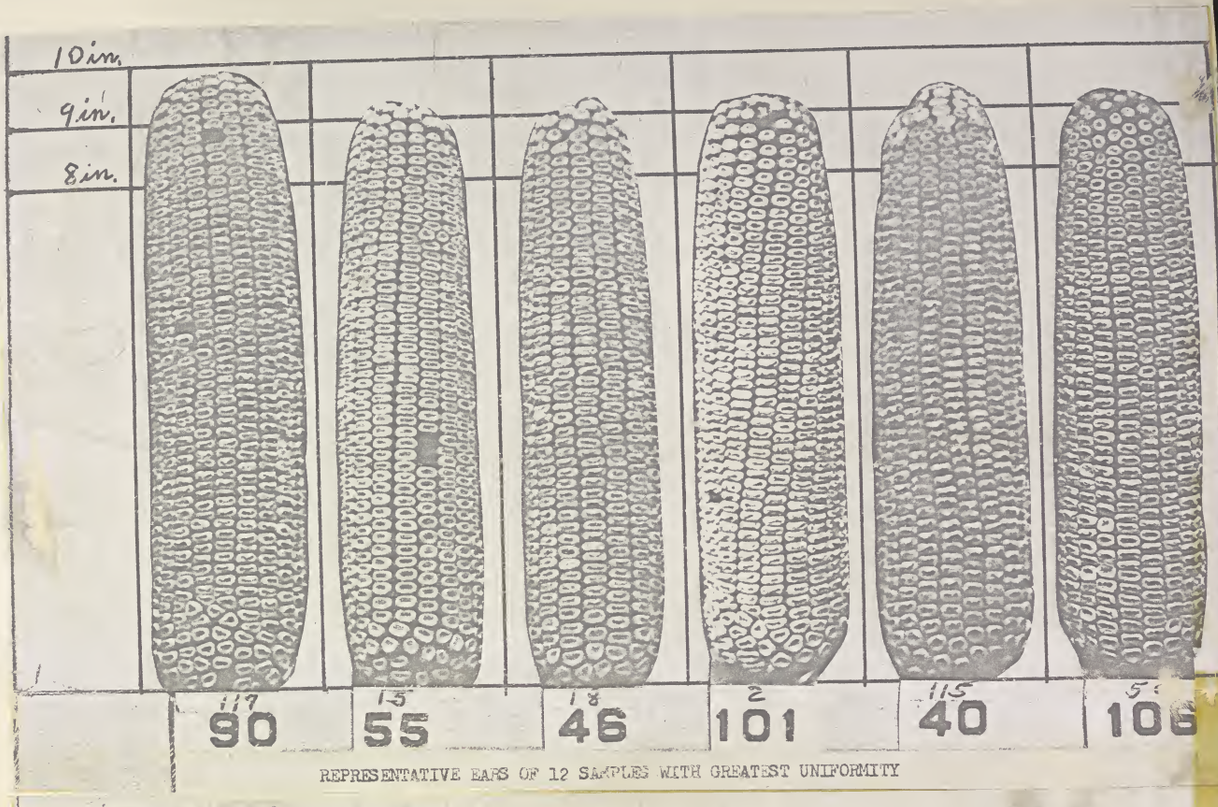
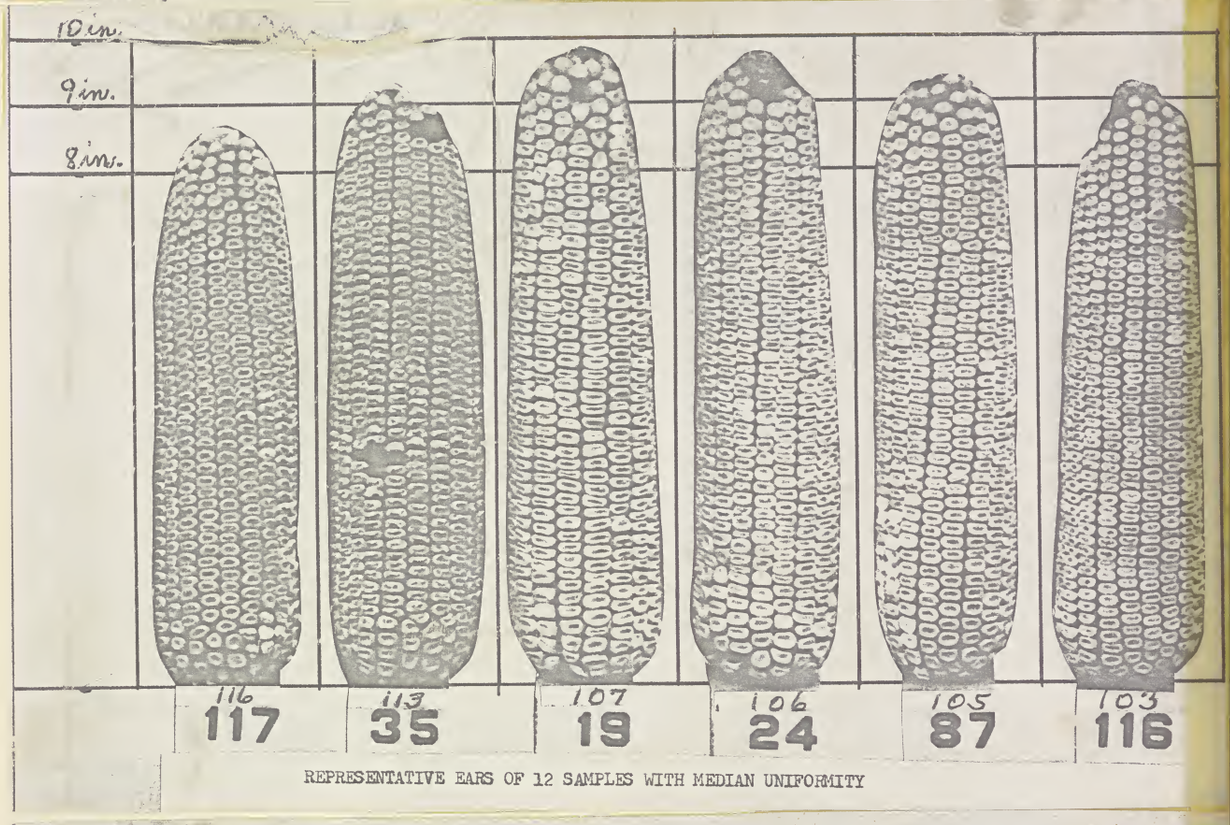
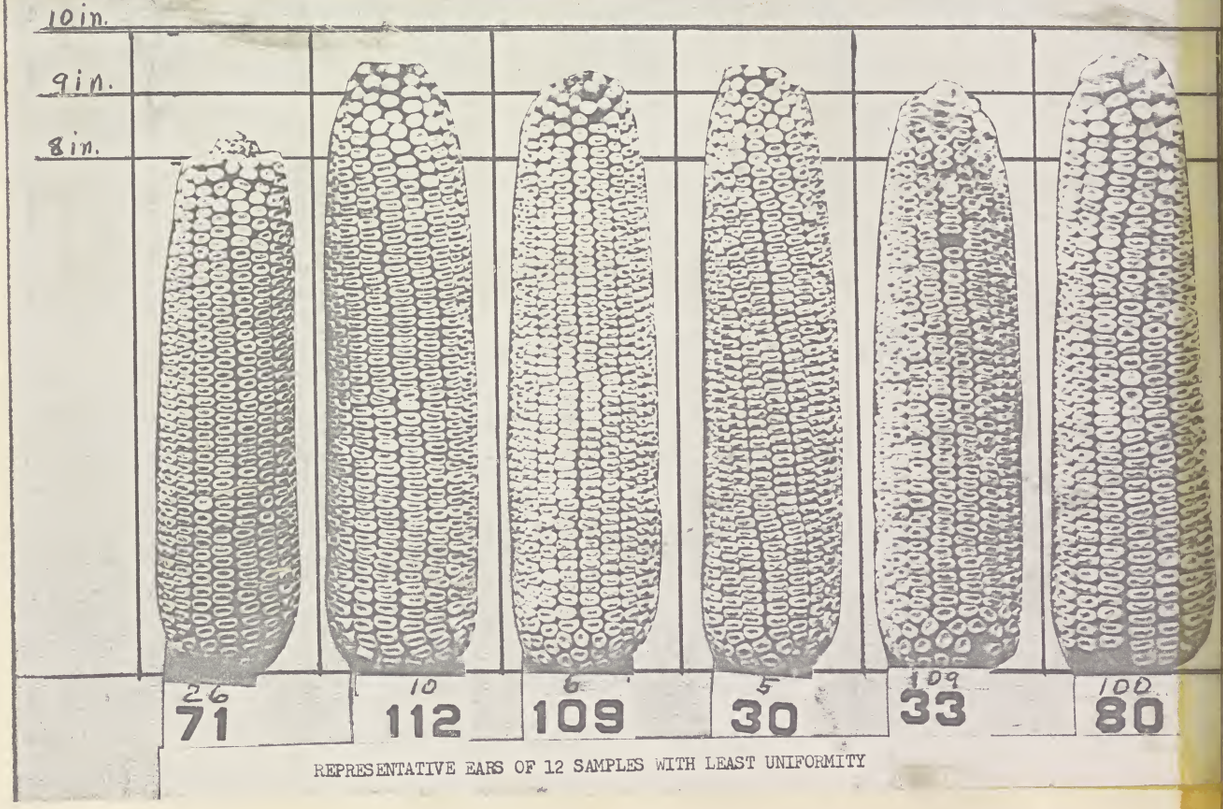


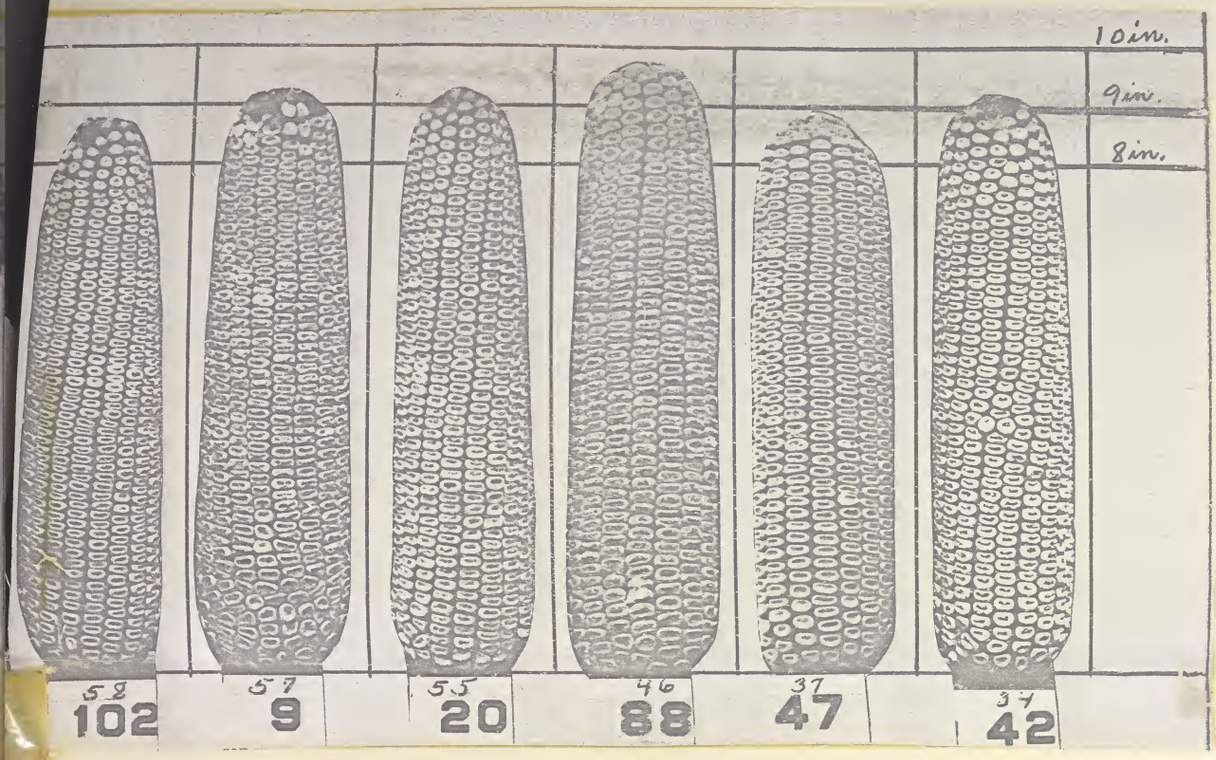
REPRESENTATIVE EARS OF 12 SAMPLES WITH GREATEST UNIFORMITY



REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN UNIFORMITY



REPRESENTATIVE EARS OF 12 SAMPLES WITH LEAST UNIFORMITY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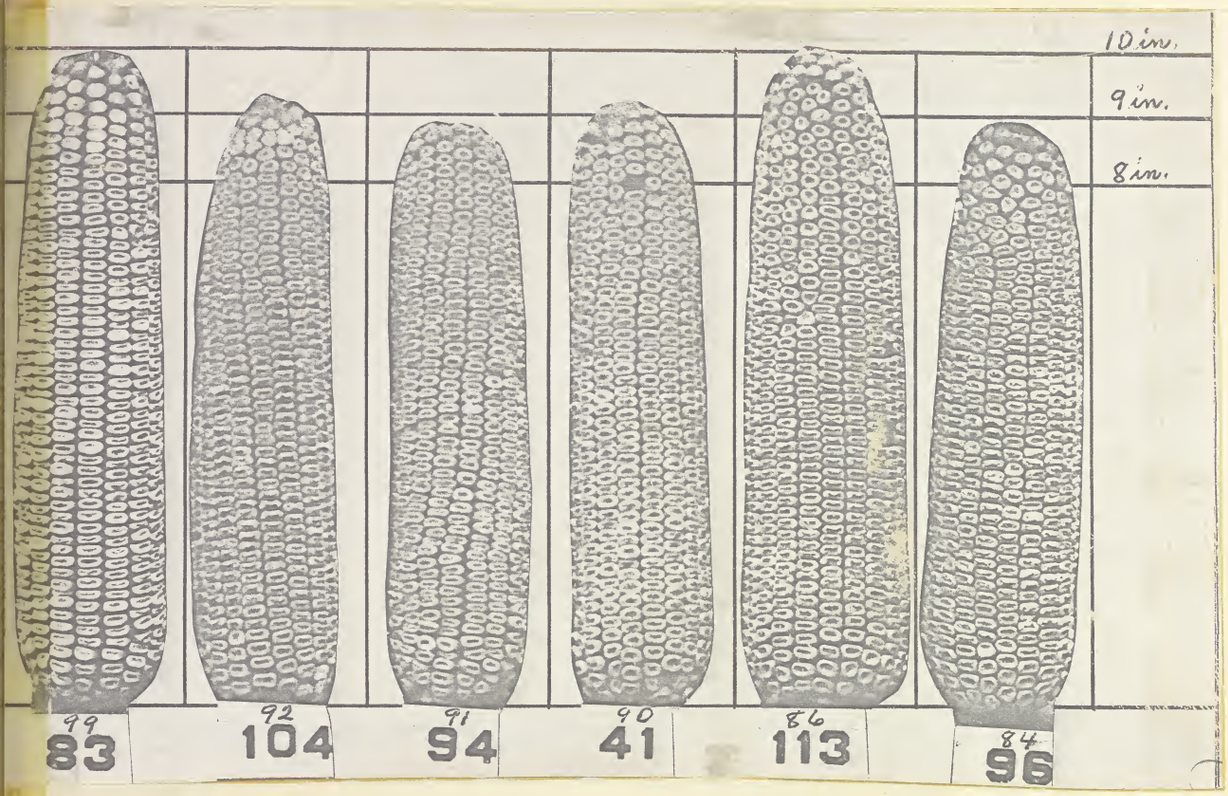
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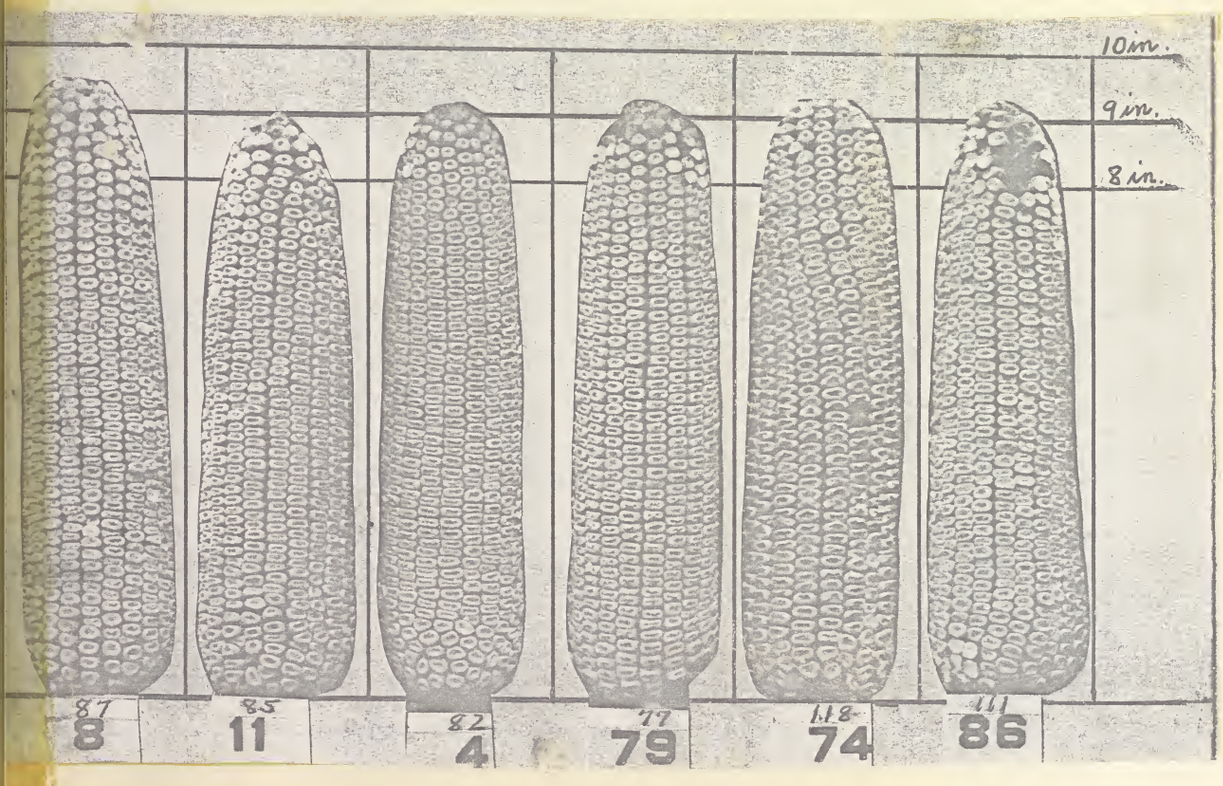
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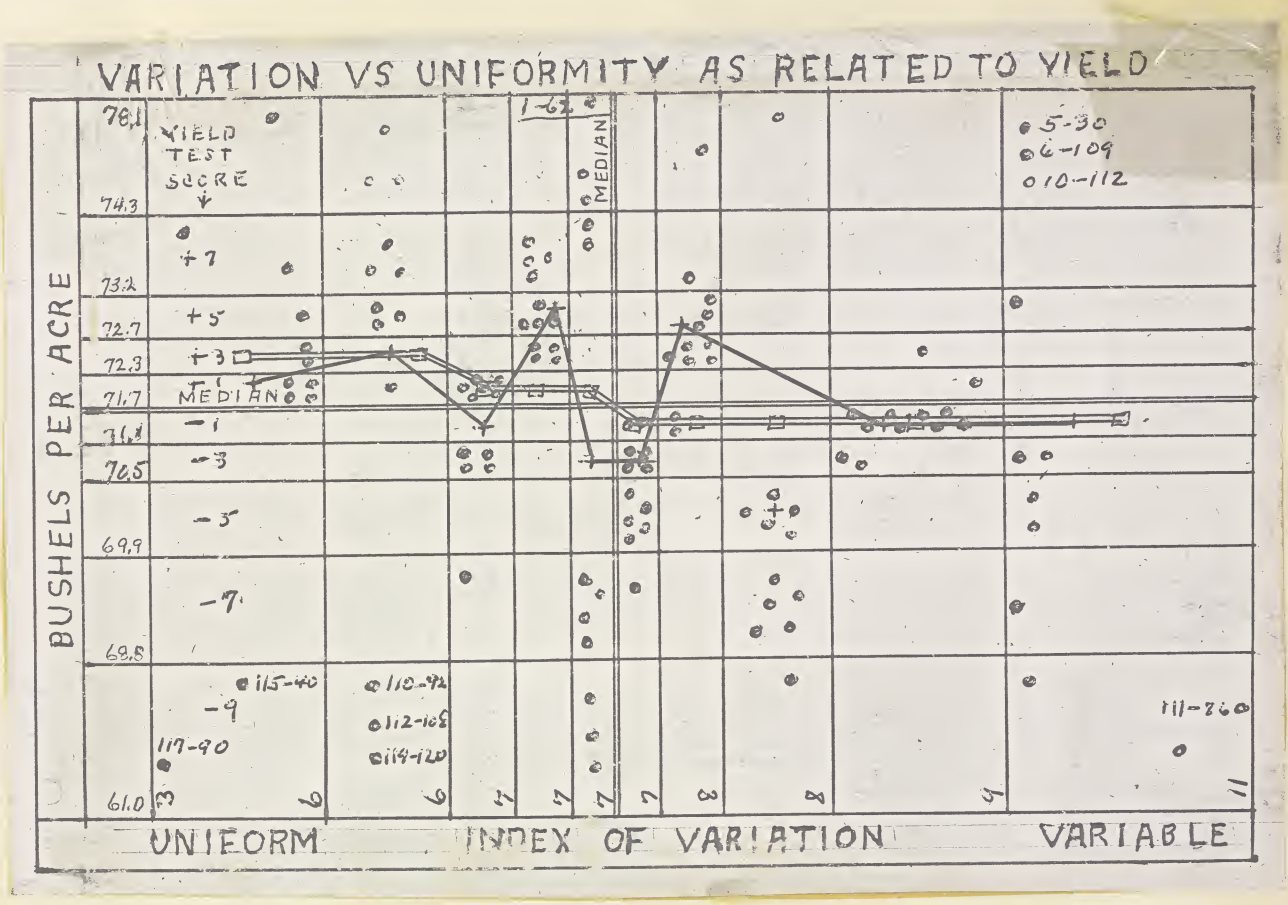


VARIATION VS UNIFORMITY AS RELATED TO YIELD
AND TO THE OTHER EIGHTEEN DESCRIPTIVE ITEMS

This analysis of the relation of uniformity in the number of rows of kernels and indentation to yield was made in 1958 when the author was writing the chapter on "Some Contributions of Corn Yield Tests to Seed Selection and Corn Shows" for the book, "Early Corn Yield Tests and Related Later Programs". The study was made in order to show what light, if any, on the generally, but not universally, accepted belief that uniformity in physical characteristics as required for prize winning samples was in error, and that lack of uniformity was to be preferred. The author who was one of the oldtime corn judges had rather reluctantly agreed to the idea. The interest in this matter was intense at the time of this field test as is indicated by the inclusion of sample No. 108-119 in the second and third year of the test. See page 108 and also page 107 of Volume I.

The variation index was calculated as follows: First, rows of kernels. A sample all of whose ears had the same number of rows was given an index number of one. If some ears had 12 and some 14, 14 and 16, 16 and 18, 18 and 20, 20 and 22 or 22 and 24 an index of two was given. If a sample had 12 and some had 16, 14 and 18, etc, an index of three was given. If some had 14 and some 18, etc, an index of four was assigned. For samples having some ears with 12 and some with 20, etc, the index of five was given. Second, indentation. An index number of one was given to a sample all of whose 30 ears had the same degree of indentation. Samples with extreme variation in indentation among the 30 ears were given index numbers of five or six. The final index number as used in this study was obtained by adding the two index numbers for each sample. This resulted in an index number of two for a sample all of whose 30 ears had the same number of rows of kernels and had the same degree of indentation.

When all samples are considered the chart above and the data on the opposite page indicate that with rather extreme variations the trend in yield is slightly but definitely downward from the most uniform to the most variable. Note that 19 of the 24 most uniform samples were above average in yield and that 18 of the most variable were below average in yield.

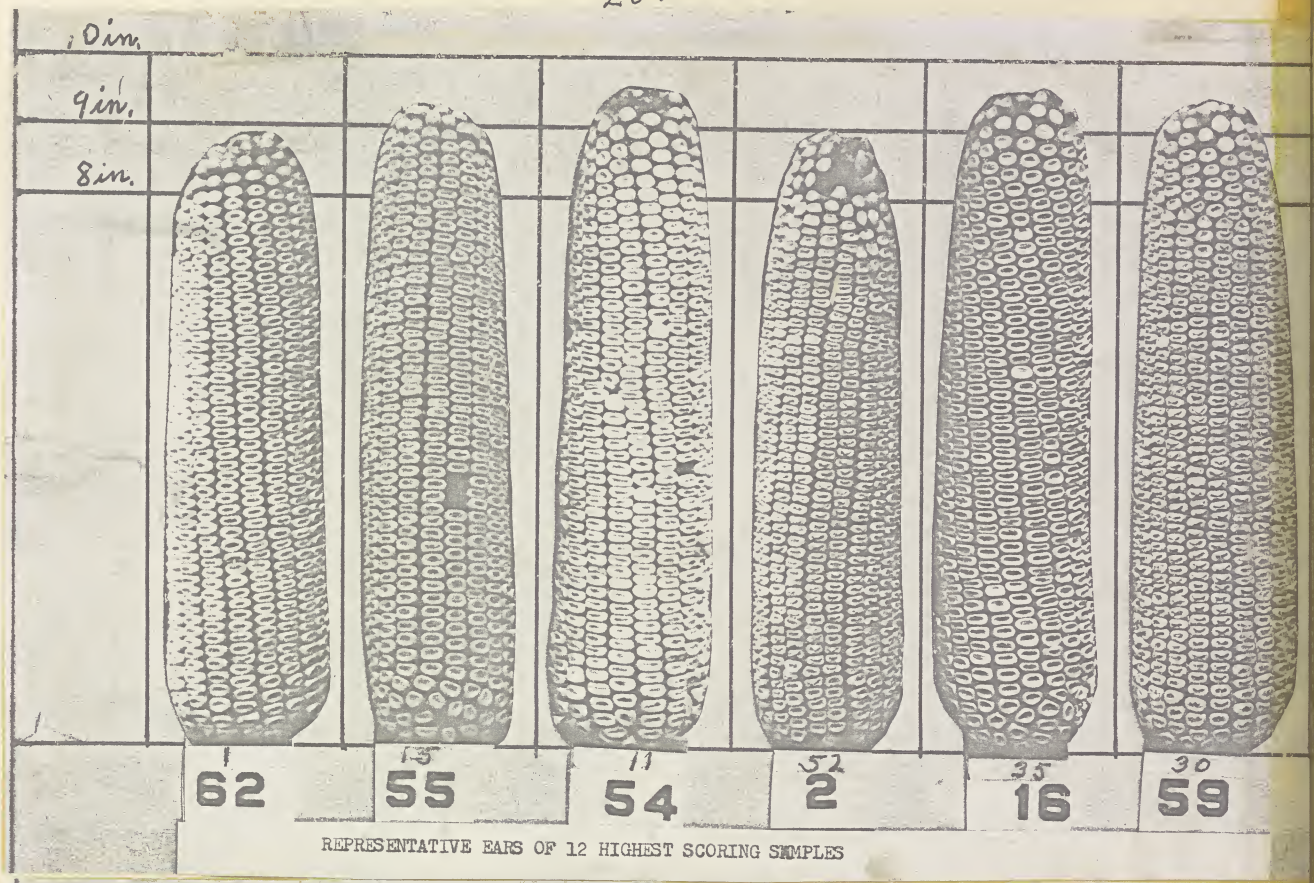
Variation in number of rows of kernels and indentation

as related to

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored	Decil groups 1	2	3	4	5	6	7	8	9	10	Poorest or least favored	See pages of Vol.II
Items that required field or laboratory tests																
Bushels per acre	72.1	69.5	71.2	High 78.1					● Median 71.7 ○				▲		Low 61.0	122-125
Percent of good corn	89.9	89.1	89.6	High 92.7					●			▲			Low 85.8	126-129
Percent of moisture	21.2	22.3	21.4	Low 17.9					● ○ 21.4			▲			High 24.9	130-133
Percent of shelled corn	86.2	85.6	85.7	High 87.3	●					▲ 85.8 ○					Low 84.5	134-137
Density of shelled corn	33.9	34.1	34.2	Heavy 35.6					○ 34.2	▲		●			Light 32.4	138-141
Germination index	86.8	86.3	86.7	High 93.8					●	▲ 87.1 ○					Low 64.5	142-145
Disease index	73.9	71.2	74.0	Little 90.2						75.7	● ○	▲			Much 58.3	146-149
Weight of ears	13.29	12.78	12.81	Heavy 15.07			●		▲ ○ 12.75						Light 10.35	150-153
Items observed by oldtime corn judges																
Density of ears	40.09	39.08	39.24	Heavy 42.03			●			Median 39.54	○	▲			Light 37.58	154-157
Kernel development	59.9	56.9	56.9	Good 78.6				●	▲ ○ 56.4						Poor 38.3	158-161
Indentation index	52.5	47.0	47.3	Smooth 16.5						▲ 44.7 ○		●			Rough 87.3	162-165
Length of kernels	13.78	13.43	13.42	Long 15.72			●		▲ ○ 13.41						Short 12.47	166-169
Width of kernels	8.09	8.02	7.83	Wide 9.01			●	▲		7.92	○				Narrow 7.12	170-173
Thickness of kernels	4.20	4.24	4.16	Thick 4.42				▲		● 4.21	○				Thin 3.89	174-177
Length of ears	9.08	9.01	8.90	Long 9.67			●			▲ 8.96 ○					Short 8.25	178-181
Diameter of ears	2.154	2.150	2.157	Small 2.012						● 2.137	▲ ○				Large 2.304	182-185
No. of rows of kernels	18.0	18.3	18.9	Small 14.9				●		▲ 18.3	○				Large 2.09	186-189
Color of shank index	69.6	67.0	62.4	White 86.7					●	67.7 ▲			○		Dark 36.7	190-193
Condition of shank index	42.7	36.9	39.1	Smooth 58.3				●			▲				Rough 18.3	194-197
Variation index	5.3	7.0	9.2	● Uniform 3.0						▲ 7.0					Uneven 11.0 ○	198-201

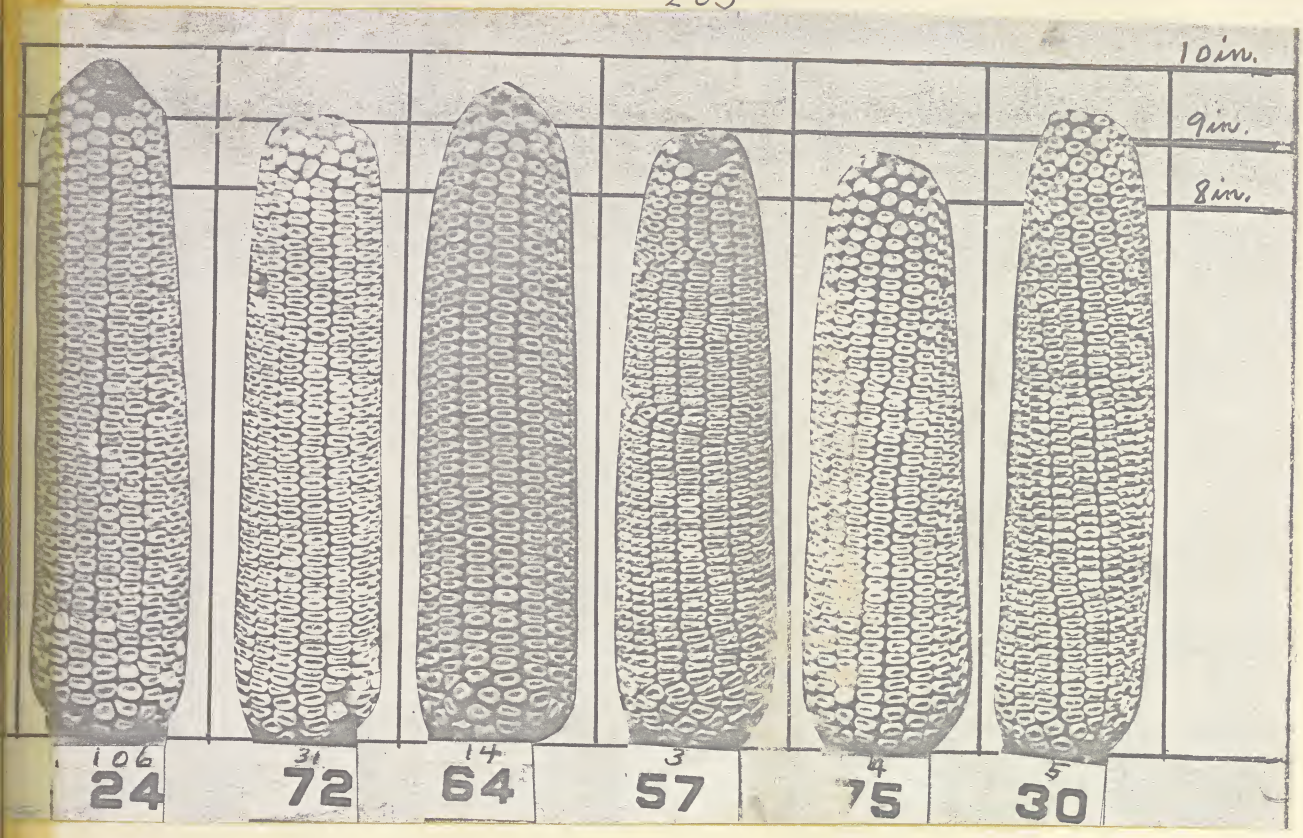
★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.



REPRESENTATIVE EARS OF 12 HIGHEST SCORING SAMPLES

CORN JUDGES' SCORE
as related to
YIELD AND 18 OTHER DESCRIPTIVE ITEMS

(See pages 204-205)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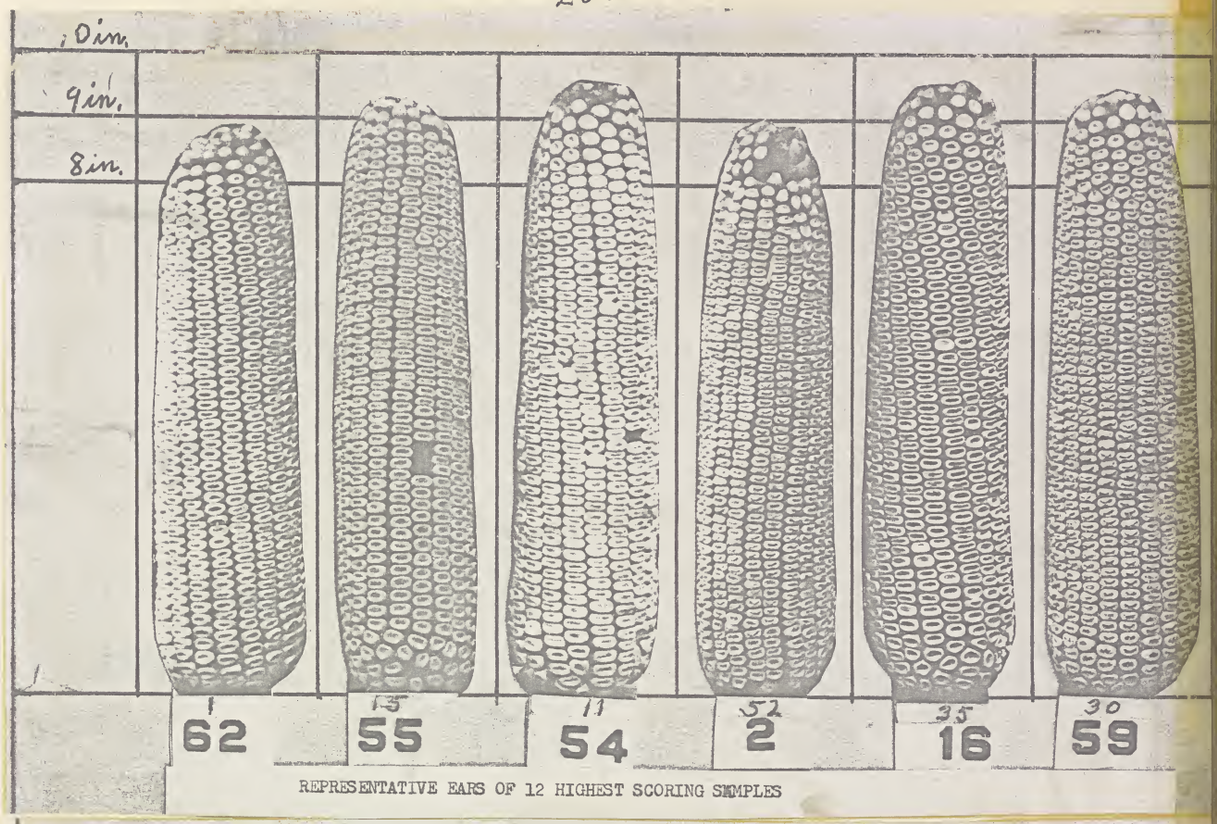
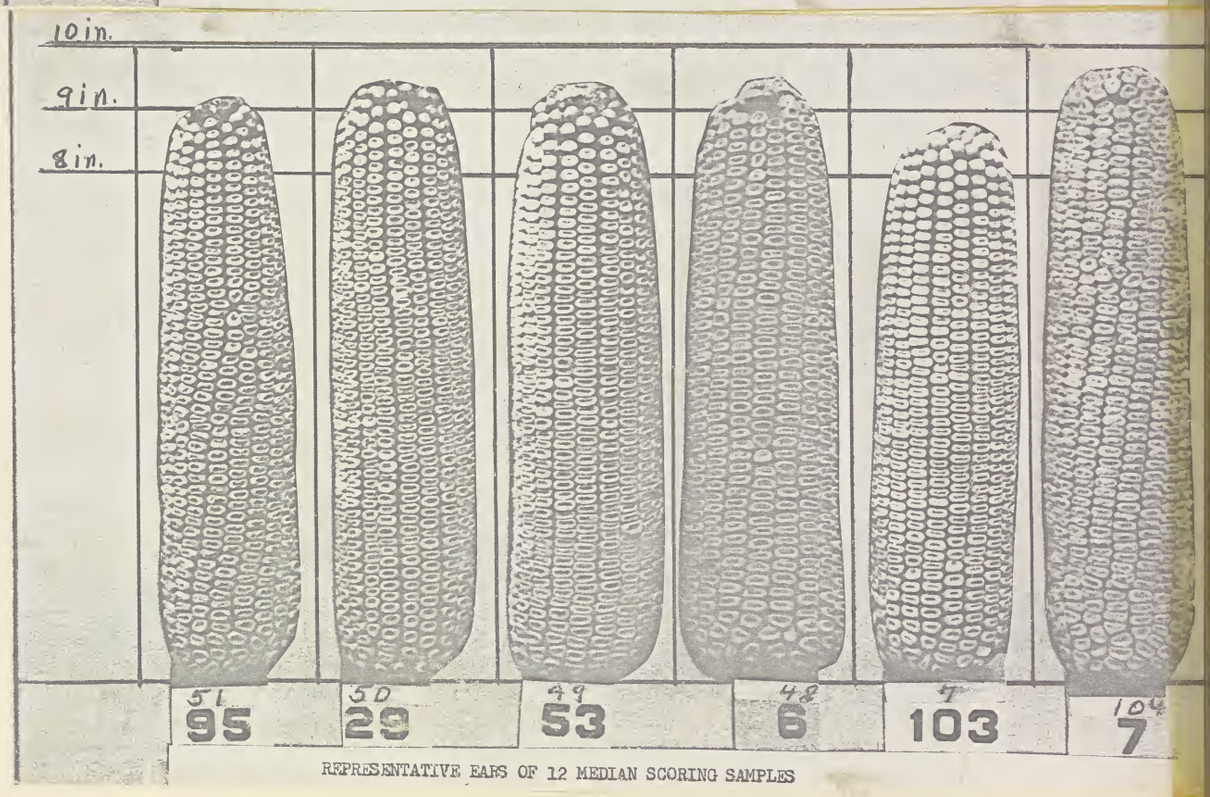
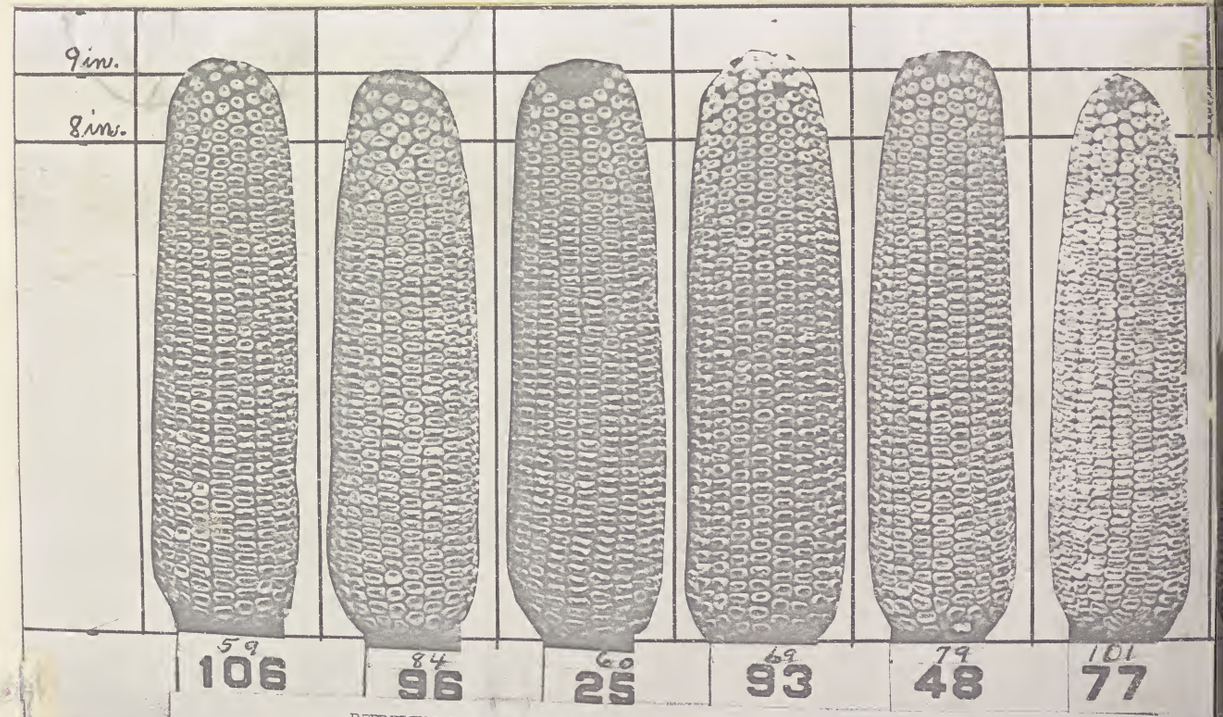


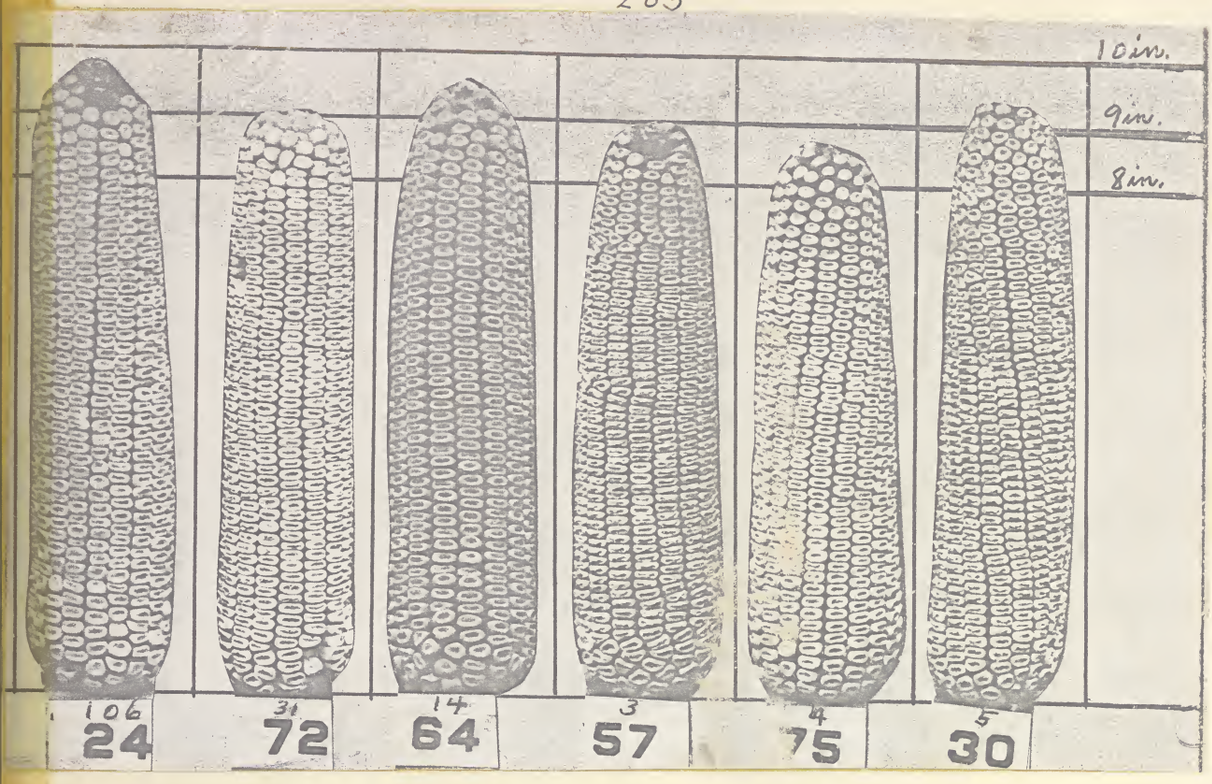
REPRESENTATIVE EARS OF 12 HIGHEST SCORING SAMPLES



REPRESENTATIVE EARS OF 12 MEDIAN SCORING SAMPLES



REPRESENTATIVE EARS OF 12 LOWEST SCORING SAMPLES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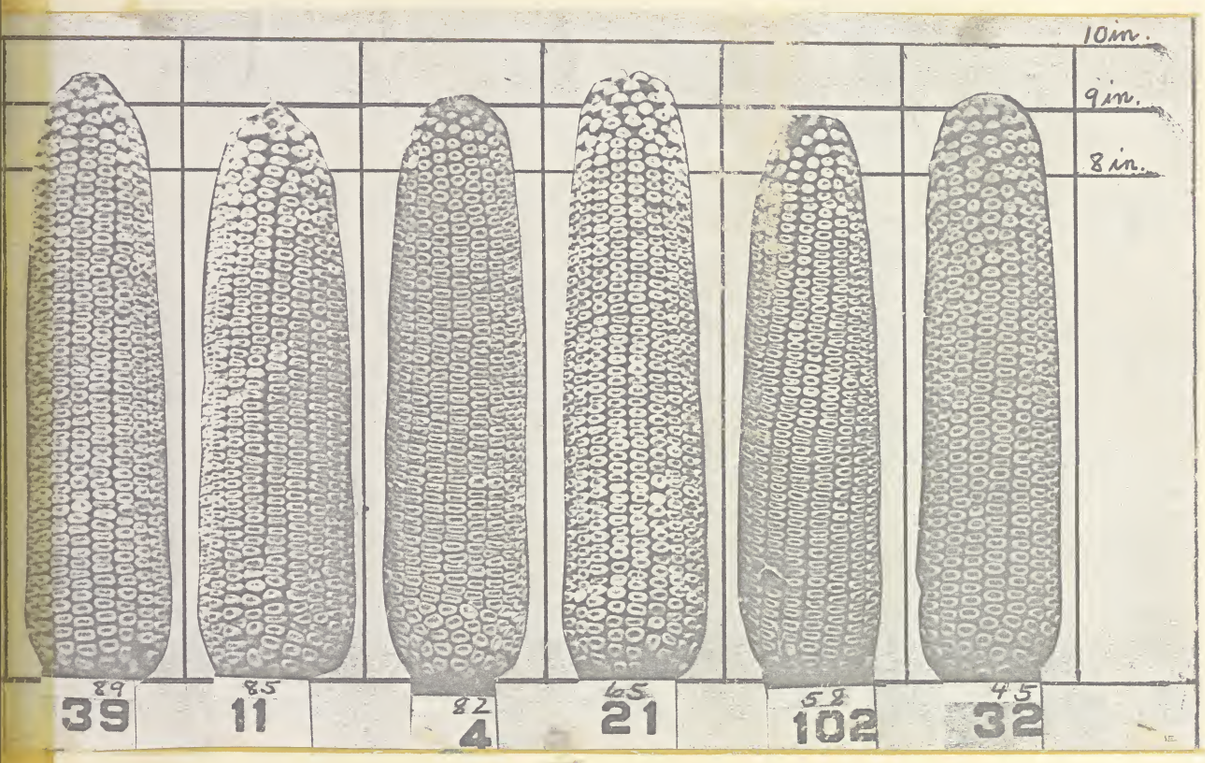
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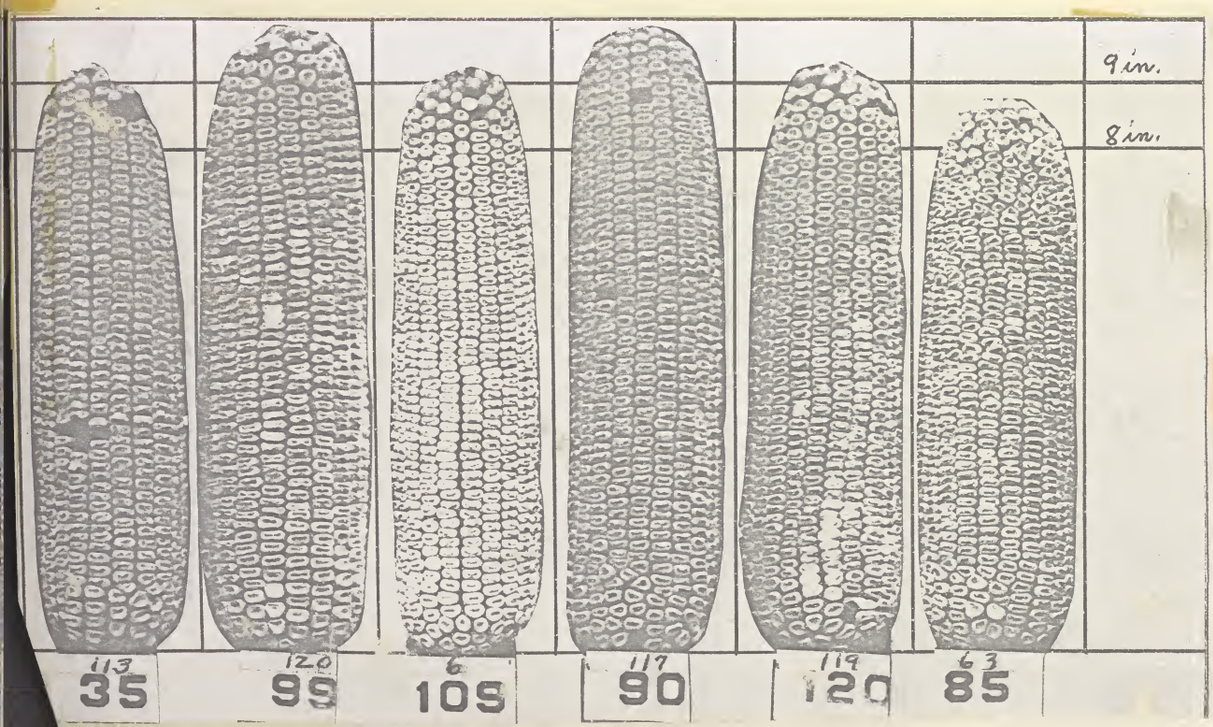
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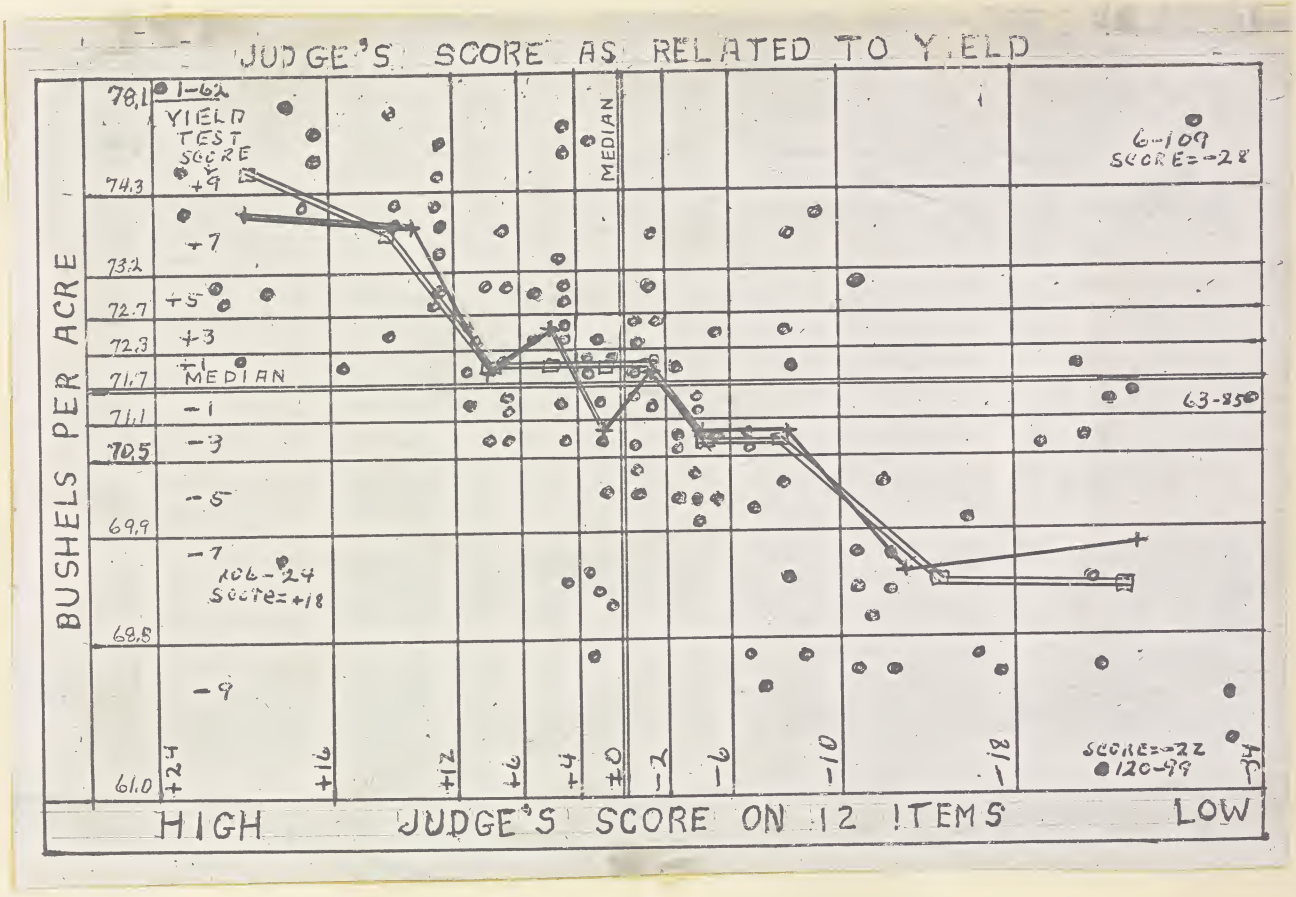


CORN JUDGES' SCORE AS RELATED TO YIELD

A yield test score was developed. It was based on the relative arithmetic average yields of decil groups of the 120 samples included in the test. The decil groups were formed by dividing the 120 samples into groups of 12 each according to the numerical values placed on each of the twelve descriptive items commonly considered by judges. See charts on pages 156 to 200. The solid black lines on the twelve charts just referred to as based on the average yields of the decil groups were very eratic. Such trend lines were rounded off essentially as shown by the double lines with the rounded off yield of each group marked with a ☐ sign.

Each of the 120 samples was given a yield-test-score for each of the 12 descriptive items as follows: where a sample fell into decil group 1 for that descriptive item it was given a score of +1 if the group yield fell into yield-group 5, which is slightly above the average yield of all 120 samples. A score of +3 was given if the group fell into yield-group 4, a score of +5 if it fell into yield-group 3 and a score of +7 if it fell into yield-group 2. In a similar way, where the average yield of the 12 samples in each descriptive item fell into below average yield groups, a yield-test-score of -1, -3, -5, or -7 was given when the sample fell into yield-groups 6, 7, 8, or 9. The yield-test-score for each sample was formed by adding the scores for all twelve descriptive items.

The score for each of the 120 samples for each of the 12 descriptive items and the total score for each sample is shown with the complete records as shown on pages 2 to 120 of Volume I. The yield-test-score was added to this report after the forms were printed.

The yield-test-score varied from +24 for sample No.1-62 which was the yighest yielding sample to -34 for No.63-85 which yielded 71.5 bushels per acre. No.120-99, the lowest yielding sample scored -22. The 12 high scoring samples yielded an average of 73.7 bushels per acre while the 12 low scoring samples yielded an average of 69.4 bushels. The 12 high yielding samples scored an average of +10 and the 12 low yielding samples yielded an average of -16.

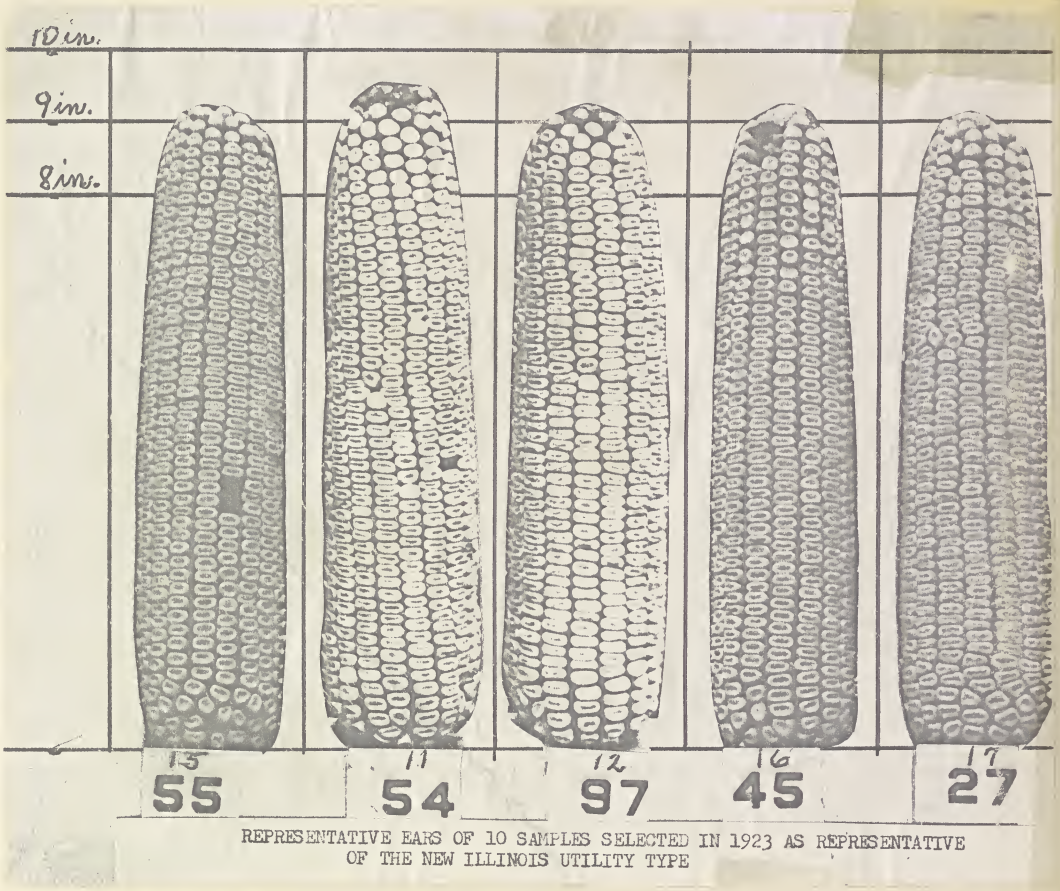
The two mavericks, sample No.6-109 with a score of -28 among the high yielding samples and No.106-24 with a score of +18 among the next to low yielding groups, support the idea that there were characteristics that determine yield that were not observable by the old-time corn judges.

GRAPHIC COMPARISON OF 20 ITEMS OF DESCRIPTIVE DATA
of
AVERAGE OF 10 SAMPLES WITH HIGHEST YIELD-TEST-SCORE(See pages 172-
and
AVERAGE OF 10 SAMPLES WITH LOWEST YIELD-TEST-SCORE(See pages 172-E

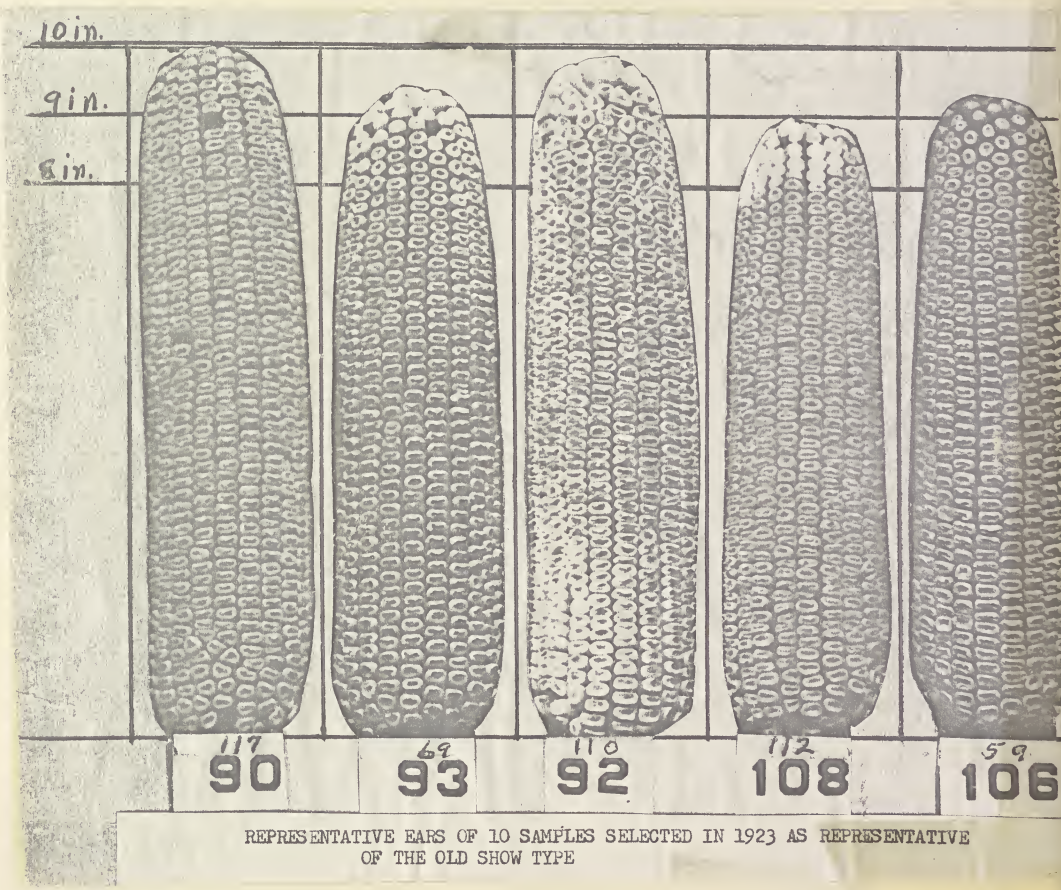
Descriptive items	Value: High test score	Value: Low test score	Best or most favored	Decil group 1	2	3	4	5	6	7	8	9	Poorest or least favored 10	See pages of Vol.II
	●	○												
Items that required field or laboratory tests														
Bushels per acre	73.7	69.4	High 78.1	●				Median 71.7				○	Low 61.0	122-125
Percent of good corn	90.1	87.4	High 92.7					● 89.8				○	Low 85.8	126-129
Percent of moisture	21.4	22.2	Low 17.9					● 21.4			○		High 24.9	130-133
Percent of shelled corn	85.7	86.0	High 87.3				○	85.8 ●					Low 84.5	134-137
Density of shelled corn	34.6	33.4	Heavy 35.6			●		34.2				○	Light 32.4	138-141
Germination index	87.5	89.8	High 93.8			○		● 87.1					Low 64.5	142-145
Disease index	76.9	72.2	Little 90.2				●	75.7			○		Much 58.3	146-149
Weight of ears	12.97	13.77	Heavy 15.07	○				● 12.75					Light 10.35	150-153
Items observed by oldtime corn judges														
Density of ears	40.62	39.00	Heavy 42.03	●				Median 39.54			○		Light 37.58	154-157
Kernel development	62.5	49.6	Good 78.6			●		56.4					Poor ○ 38.3	158-161
Indentation index	39.2	71.9	Smooth 16.5				●	44.7					Rough ○ 87.3	162-165
Length of kernels	13.46	14.30	Long ○ 15.72					● 13.41					Short 12.47	166-169
Width of kernels	8.11	7.64	Wide 9.01			●		7.92				○	Narrow 7.12	170-173
Thickness of kernels	4.23	4.13	Thick 4.42				●	4.21			○		Thin 3.89	174-177
Length of ears	9.01	8.98	Long 9.67					● ○ 8.96					Short 8.25	178-181
Diameter of ears	2.124	2.237	Small 2.012				●	2.137				○	Large 2.304	182-185
No. of rows of kernels	17.8	20.0	Small 14.9				●	18.3					Large ○ 20.9	186-189
Color of shank index	71.6	65.0	White 86.7				●	67.7 ○					Dark 36.7	190-193
Condition of shank index	53.1	39.7	Smooth ● 58.3					○ 38.4					Rough 18.3	194-197
Variation index	6.6	6.6	Uniform 3.0			● ○		7.0					Uneven ○ 11.0	198-201

score +2.0 −2.6

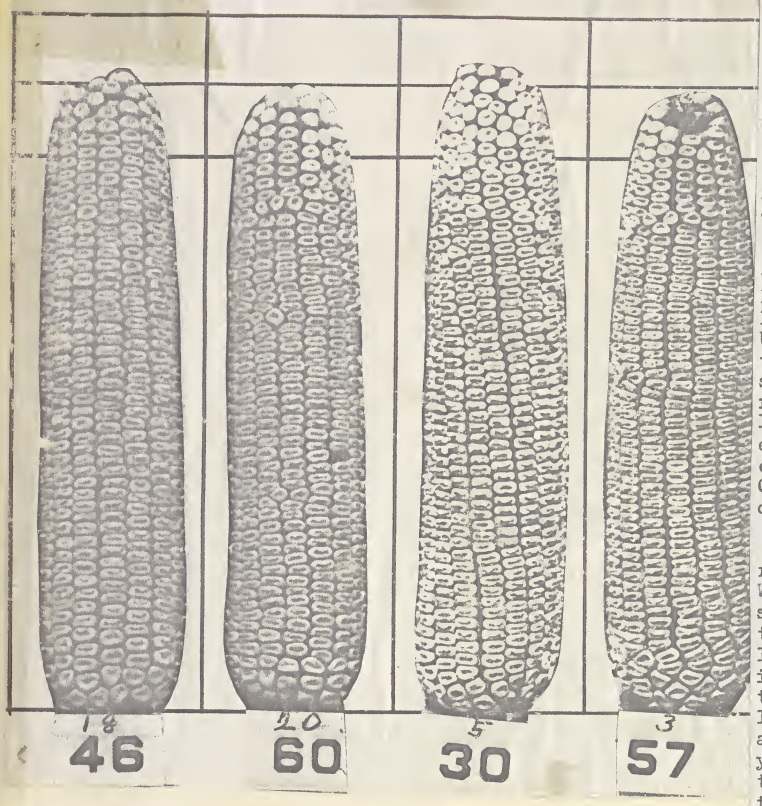
★ A relationship of each descriptive item to yield and to all other items is shown on the pages indicated.

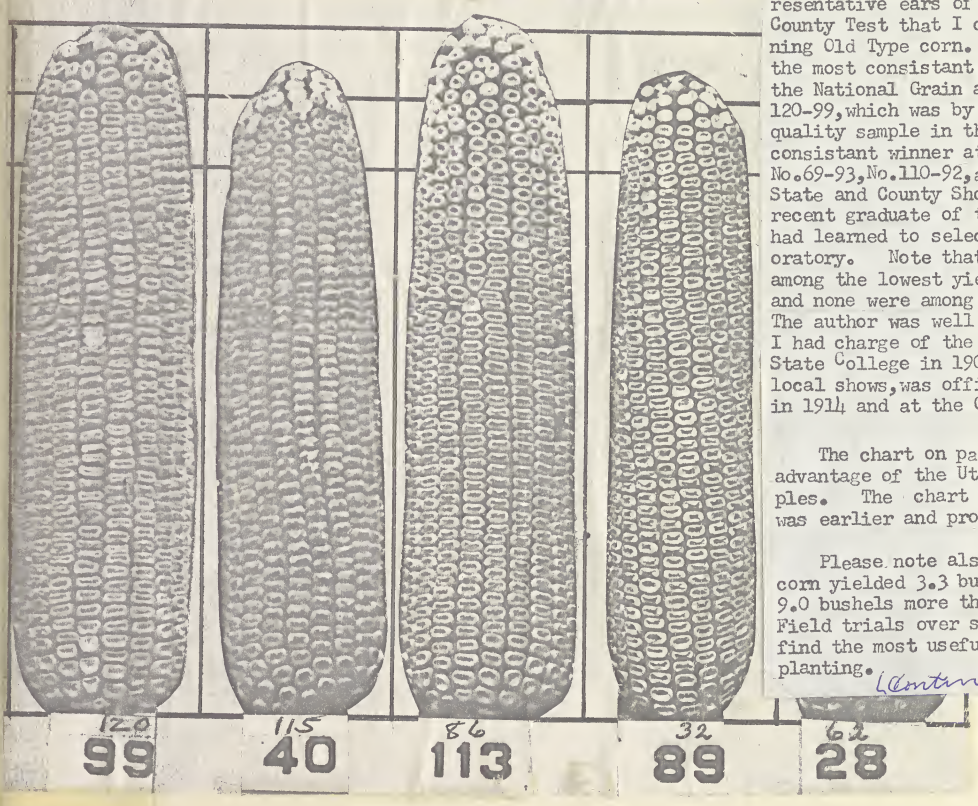


REPRESENTATIVE EARS OF 10 SAMPLES SELECTED IN 1923 AS REPRESENTATIVE OF THE NEW ILLINOIS UTILITY TYPE



REPRESENTATIVE EARS OF 10 SAMPLES SELECTED IN 1923 AS REPRESENTATIVE OF THE OLD SHOW TYPE





UTILITY TYPE vs OLD SHOW TYPE CORN

During the years that the Woodford County Corn Yield Test was being conducted the debate between the Utility type advocates and the Old Type followers was at its height. The Utility advocates depended largely on laboratory and field tests as their guides while the Old Type followers continued to depend to a much greater degree on ideas of what good corn should look and feel like.

In order to demonstrate the relative merrits of the two types this author selected from the 120 samples entered in the Woodford County Test the ten samples that in his judgement most nearly represented the Utility type and 10 other samples that best resembled the Old Show Type. Ten representative ears of the samples of each type together with their three-year records of yield and quality were exhibited at the International Livestock Exposition in 1923. The exhibit attracted much attention among judges and exhibitors. A few years later general interest in Cornbelt states led to the division into two general classes, Utility and Old Syow Type, at the National Show.

Above to the left are copies of photoes of the representative ears of ten samples entered in the Woodford County Corn Yield Test that this author considered most typical of the Utility Type. These are the ten ears exhibited at Chicago. The owner of No. 15-55 showed the champion ten ears at the first Utility Type show at Galesburg, Illinois, in 1920. Note that five of the ten samples were among the 12 high yielding samples in the Woodford County Test and that all of the other five were among the 20 high yielding samples. The author's recognized ability to make the Utility Type selection is shown by the fact that he was chosen as the official judge at one of the Illinois State Utility Shows.

Below on the left are copies of photoes of the representative ears of ten samples entered in the Woodford County Test that I considered most typical of prize winning Old Type corn. The owner of No.117-99 was one of the most consistant winners of championship prizes at the National Grain and Hay Show. The owner of No. 120-99, which was by far the lowest yielding and poor quality sample in the Woodford County Test, was also a consistant winner at the National Show. The owners of No.69-93, No.110-92, and No.115-40 had been winners at State and County Shows. The owner of No.86-113 was a recent graduate of the College of Agriculture where he had learned to select seed corn in the Farm Crops Laboratory. Note that five of the Old Type samples were among the lowest yielding, only two were above average and none were among the thirty high yielding samples. The author was well familiar with Old Type corn judging. I had charge of the Farm Crops Laboratory at the Iowa State College in 1905, had judged hundreds of county and local shows, was official judge at the South Dakota show in 1914 and at the Ontario Provincial Show in 1915.

The chart on page 208 shows a 5.7 bushel yield advantage of the Utility over the Old Show type samples. The chart shows also that the Utility corn was earlier and produced corn of better quality.

Please note also on pages 210 to 212 that Krug corn yielded 3.3 bushels more than the Utility and 9.0 bushels more than the Old Show type of corn. Field trials over several years was the only way to find the most useful type of seed to select for planting. (Continued on Page 208)

GRAPHIC COMPARISON OF 20 ITEMS OF DESCRIPTIVE DATA of AVERAGE OF 12 BEST OLD-SHOW TYPE SAMPLES (See pages 172-E,17 and AVERAGES OF 12 BEST UTILITY TYPE SAMPLES (See pages 172-E,17

Krug ▲

	Descriptive items	Value: Old show type	Value: Utility type	Best or most favored 1	2	3	4	5	6	7	8	9	Poorest or least favored 10
		●	○										
	Items that required field or laboratory tests												
78.1	Bushels per acre	69.1	74.8	High 78.1 ○▲				Median 71.7				●	Low 61.0
89.7	Percent of good corn	88.8	90.0	High 92.7				○	▲	●			Low 85.8
20.3	Percent of moisture	22.5	20.9	Low 17.9	▲		○		21.4		●		High 24.9
86.3	Percent of shelled corn	86.1	86.1	High 87.3	▲	● ○			85.8				Low 84.5
35.5	Density of shelled corn	33.4	34.6	Heavy ▲ 35.6		○			34.2			●	Light 32.4
86.7	Germination index	86.3	87.1	High 93.8				○	● ▲ 87.1				Low 64.5
79.8	Disease index	73.6	76.9	Little 90.2		▲	○		75.7	●			Much 58.3
1248	Weight of ears	14.04	12.83	Heavy ● 15.07				○	12.75	▲			Light 10.35
	Items observed by oldtime corn judges												
39.91	Density of ears	39.32	40.55	Heavy 42.03	○		▲		39.54	●			Light 37.58
62.2	Kernel development	54.4	62.1	Good 78.6		○ ▲			56.4	●			Poor 38.3
35.0	Indentation index	65.8	44.9	Smooth 16.5	▲				44.7 ○				Rough ● 87.3
13.74	Length of kernels	14.36	13.56	Long ● 15.72		▲	○		13.41				Short 12.47
7.83	Width of kernels	7.92	8.20	Wide 9.01		○		●	7.92	▲			Narrow 7.12
4.12	Thickness of kernels	4.22	4.17	Thick 4.42				●	4.21	○		▲	Thin 3.89
8.75	Length of ears	9.21	9.01	Long 9.67	●			○	8.96		▲	/	Short 8.25
2.133	Diameter of ears	2.222	2.113	Small 2.012			○	▲	2.137			●	Large 2.304
17.8	No. of rows of kernels	19.8	17.2	Small 14.9	○		▲		18.3	●			Large 20.9
68.3	Color of shank index	64.9	65.5	White 86.7				▲	○ 67.7	●			Dark 36.7
58.3	Condition of shank index	36.6	45.3	Smooth ▲ 58.3		○			38.4	●			Rough 18.3
7.0	Variation index	6.1	6.7	Uniform 3.0		● ○		▲	7.0				Uneven 11.0
+24	Score -12 +16 ▲○ ●												

★ A relationship of each descriptive item to yield and to all other items is shown on the pages indicated.

(continued from page 207)

During the ten to twenty years before hybrids came into general use, an increasing number of farmers and Experiment Station workers were developing Utility types. they did this by yield tests and close observation of types that were producing crops with higher yields and better quality.

A few such men are listed here: George Krug with his Krug corn; a Will County farmer produced Will County Favorite; men in the DeKalb Farm Bureau produced Western Plowman; A Mr McKeigan in McDonough County, Illinois, produced McKeigan's Yellow Dent; Claude Chapman of the Illinois Experiment Station produced Station Dent; Professor Burnett of the Iowa Experiment Station produced Iodent, and Professor R.A.Moore of the Wisconsin Experiment Station produced Wisconsin No.7, a good early white corn. One of the most effective producers of the Util-Type was Dr. J.R.Holbert of the U.S.D.A. who was stationed for many years with Funk Brothers Seed Company at their Research Farm near Bloomington, Illinois. He developed an excellent strain of Reids Yellow Dent known as 176 A.

Professor J.C.Hackelman, for many years Crops Extension Specialist in Illinois, did an excellent job of making popular among farmers the Utility Types named above, and developing the Illinois Utility Score Card. Cooperating with the Farm Advisor in Knox County, Illinois, he conducted the first Utility Corn Show at Galesburg in 1920. Shortly after that the National Corn Show recognized Utility Corn by providing separate classes for Utility Corn.

209-A

A COSTLY DECISION OF OLDTIME CORN JUDGES

A decision of oldtime corn judges made in 1905 cost Cornbelt farmers millions of dollars from 1905 to 1925. The decision was a logical one according to the trend in corn judging at that time. However later events show that it was a very costly decision. The story of what happened follows.

The Burg Wagon Company of Burlington, Iowa, exhibited a nickel plated farm wagon valued at $2,000 at the World Exposition in St Louis in 1904. The Burg Company offered the wagon as first prize for the best 100 ears of corn to be shown at the Annual Show of the Iowa Corn Growers Association in January, 1905. The show was held at Ames, Iowa, during the two weeks Short Course in Corn and Livestock Judging and Domestic Science. See the cover-page clipping of Wallaces' Farmer of January 20, 1905, on page 209.

The author, then a Senior student in Agronomy, was assisting Professor P.G. Holden in the Short Course Corn Judging classes and had no part in the judging of the corn show. However I do have a very clear memory of the general appearance of the samples of yellow corn that were the competitors for the $2,000 wagon. Please turn to page 209 to see copies of (1) the announcements of the contest and (2) the insert which names the four prize winners.

Most of a large number of entries were from Iowa and Illinois. James Reid of Delavan, Illinois, who had won fame and fortune from the sale of seed [1] by having shown the sweepstakes ten ears of corn at the Columbian Exposition in Chicago in 1893 entered a sample and was present during the show. James Reid and his father, Robert Reid, had developed the Reid's Yellow Dent corn which came to be the most widely used strain of corn ever grown in the Cornbelt. Later it became the source of a majority of the inbreds used in the production of hybrid corn.

The judging of the 100-ear class was done by the best known judges available. The four prize winners were announced as follows:

First.-W.E. Johnson, Athens, Menard County, Illinois.
Second.-J.A. Boyd, also of Menard County, Illinois.
Third.-Asa Turner, Maxwell, Story County, Iowa.
Fourth.-J.W. Maxwell, Washington County, Iowa.

James Reid was a disappointed man. However his quiet acceptance of the decision and his attitude of assurance as he mingled with the crowd indicated that he was confident that he knew better than the judges what was the best type of corn to be grown in the center of the Cornbelt.

All of the four prize winning samples were of a rough, deep grained type rather than the medium smooth, medium deep grained type which prevailed in the James Reid sample.

This important decision by well known judges had wide publicity and naturally led judges of national, state, county and local shows and teachers of corn judging to favor the large eared, deep grained, rough types. This author was one of the mis-led judges who early began to have misgivings as he studied the results obtained in the County Farm Demonstartions. See his book, Early Iowa Corn Yield Tests and Related Later Programs. Farmers readily accepted such types because "large ears filled the wagon box faster" in those hand-husking days.

(over)

[1] W.E. Johnson, also, had "won fame and fortune" at state and national corn shows. However, his corn was better suited for south central Illinois where he lived than 150 miles north in the middle of the Cornbelt where the big show was held.

Krug	De ite
▲	
78.1	Bush acre
89.7	Perc good
20.3	Perc mois
86.3	Perc shel
35.5	Den: shel
86.7	Gerr inde
79.8	Dise inde
1248	Weig ears
39.91	Dens ears
62.2	Kern deve
35.0	Inde inde
13.74	Leng kern
7.83	Widt kern
4.12	Thic kern
8.75	Leng ears
2.133	Diam ears
17.8	No. of k
68.3	Colo shan
58.3	Cond shan
7.0	Vari inde
+24	Sco A is

A few months ago as I studied the photographs of representative ears and the descriptive records of the 120 lots of seed entered in the Woodford County Test my memory kept going to the differences between James Reid's corn and the Johnson's type of Reid's Yellow Dent. So, I trimmed the natural size photographs of the 120 representative ears close around the ears, wrote the indetification numbers on the backs of the photoes, mixed the photographs thoroughly and laid them out side by side on a large table as we had been accustomed to do in the oldtime corn judging days. Then I selected two ten ear samples, one like my memory of the James Reid corn and one like the Johnson's Reids Yellow Dent. When selecting the James Reid sample I was guided by the picture of the ear of Reids corn published in the January 20, 1923, issue of Prairie Farmer as well as by my memory. See page 211. Also, I asked Ralph Allen Jr. who grew up and still lives on a farm near the Reid Farm in Tazewell County, Illiois, to make a similar selection of what he considered to be a representative sample of Reid's corn. The combined product of our two selections is shown at the top of pages 210 and 211. In the same manner a representative sample of the Johnson's type of Reids corn was selected. See the Johnson's type sample on the middle of pages 210 and 211.

A comparison with the Reid's and Johnson's corn with the Krug corn is shown by the photographs on pages 210 and 211 and the chart on page 212.

The James Reid's simulated sample yielded 2.5 bushels per acre more corn of better quality than the Johnson's Reids. Note from the identification numbers on pages 210 and 211 that five of the eight low yielding samples were selected to represent the Johnson's type and that none of them were among the 40 high yielding samples. In contrast, three of the James Reid type samples were among the 40 highest yielding samples and none were among the 24 lowest yielding samples.

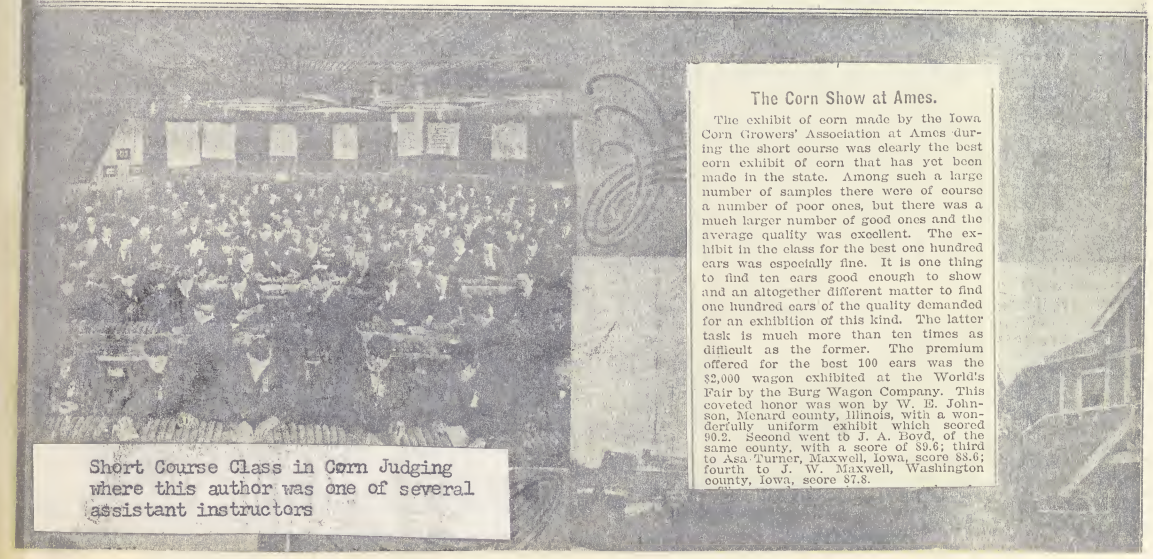
Note also on page 212 that the Krug corn outyielded the James Reid simulated sample by 6.6 bushels and the Johnson's type by 9.1 bushels. Which shows again that the only way to be sure of selecting high yielding and good quality seed corn is by means of repeated corn yield tests.

WALLACES' FARMER

"GOOD FARMING—CLEAR THINKING—RIGHT LIVING"

A WEEKLY JOURNAL FOR WESTERN FARMERS

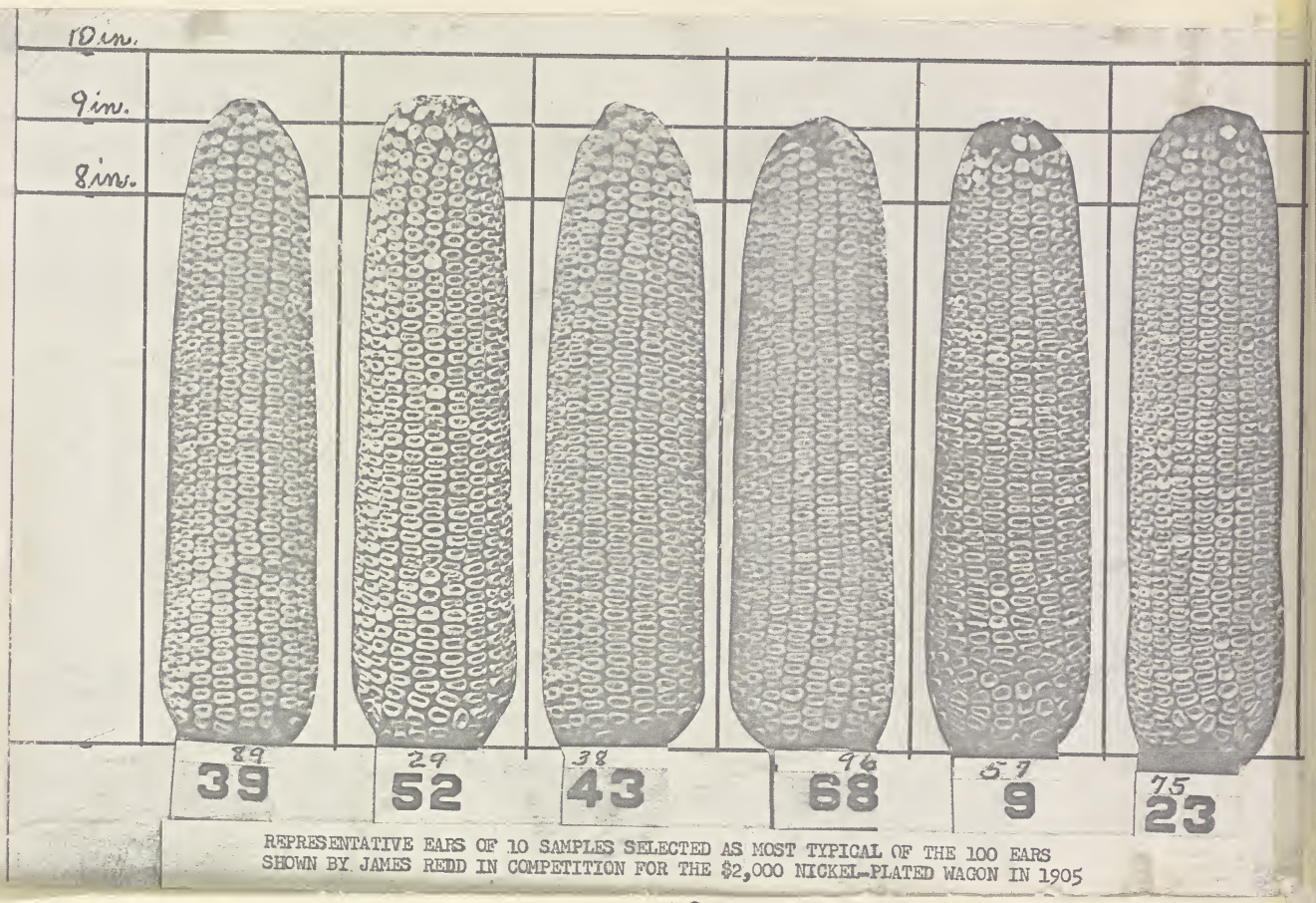
XXX DES MOINES, IOWA, FRIDAY, JANUARY 20, 1905. NO.



Short Course Class in Corn Judging where this author was one of several assistant instructors

The Corn Show at Ames.

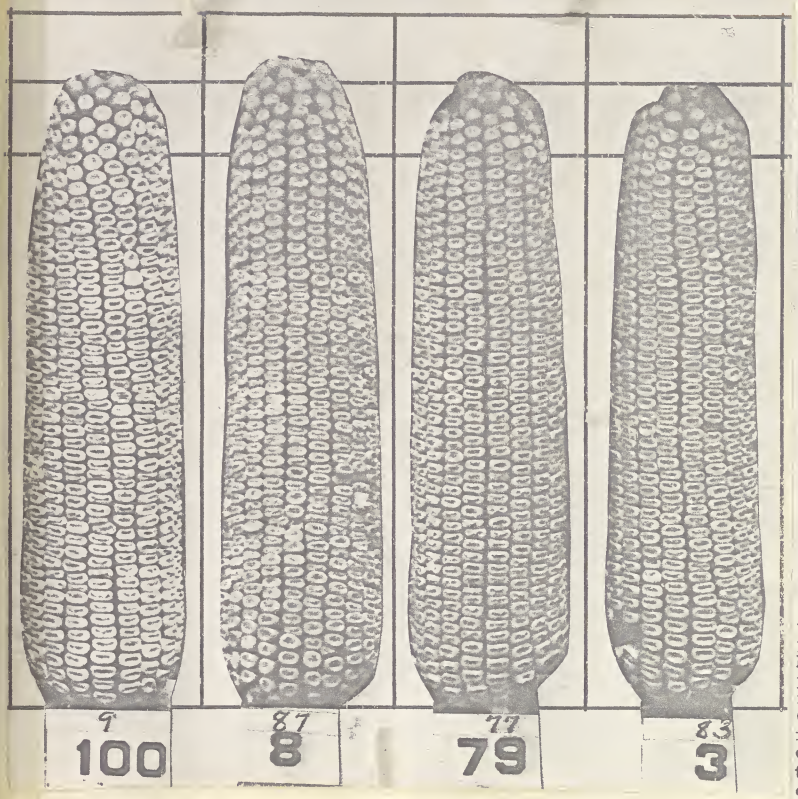
The exhibit of corn made by the Iowa Corn Growers' Association at Ames during the short course was clearly the best corn exhibit of corn that has yet been made in the state. Among such a large number of samples there were of course a number of poor ones, but there was a much larger number of good ones and the average quality was excellent. The exhibit in the class for the best one hundred ears was especially fine. It is one thing to find ten ears good enough to show and an altogether different matter to find one hundred ears of the quality demanded for an exhibition of this kind. The latter task is much more than ten times as difficult as the former. The premium offered for the best 100 ears was the $2,000 wagon exhibited at the World's Fair by the Burg Wagon Company. This coveted honor was won by W. E. Johnson, Menard county, Illinois, with a wonderfully uniform exhibit which scored 90.2. Second went to J. A. Boyd, of the same county, with a score of 89.6; third to Asa Turner, Maxwell, Iowa, score 88.6; fourth to J. W. Maxwell, Washington county, Iowa, score 87.8.

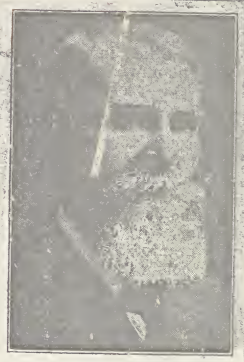


REPRESENTATIVE EARS OF 10 SAMPLES SELECTED AS MOST TYPICAL OF THE 100 EARS SHOWN BY JAMES REDD IN COMPETITION FOR THE $2,000 NICKEL-PLATED WAGON IN 1905

211

PRAIRIE FARMER
JANUARY 20, 1923





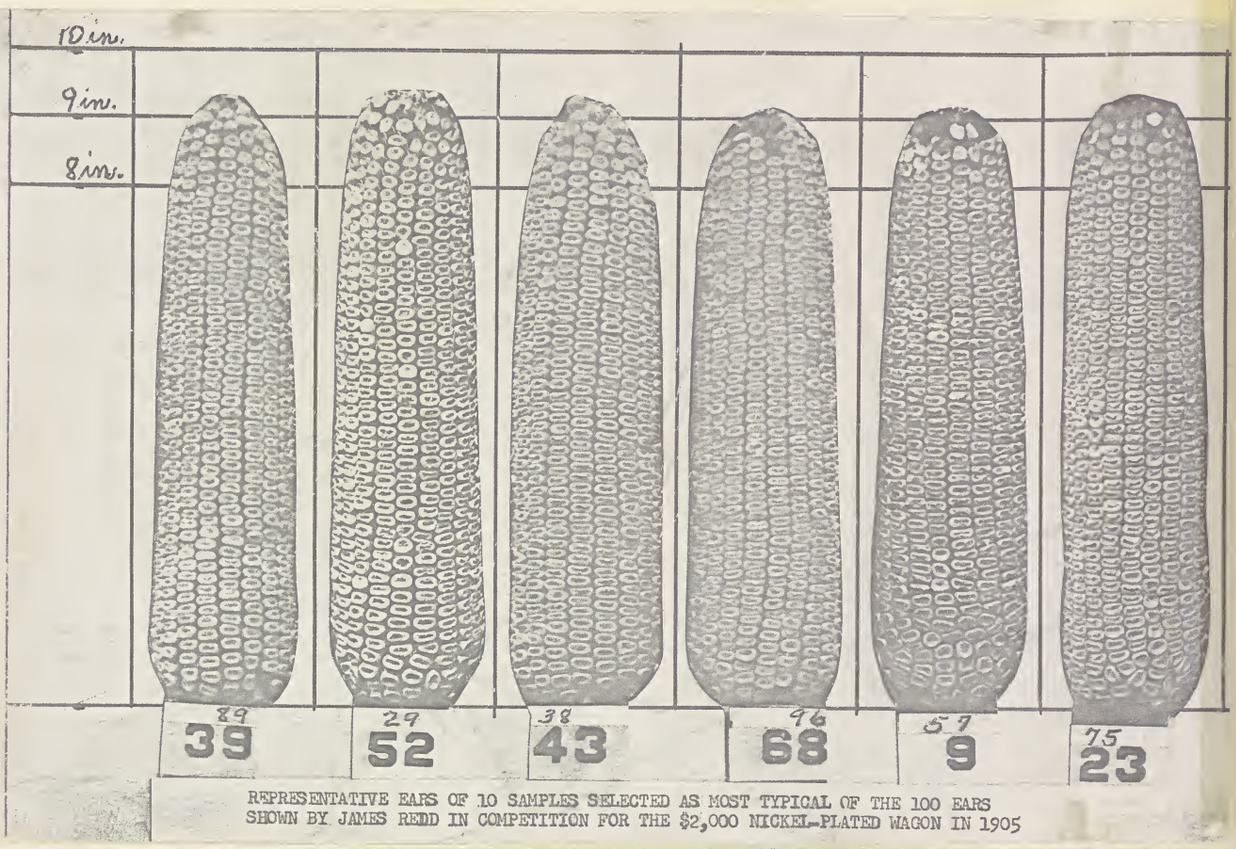
James Reid of Tazewell county, Ill., who perfected Reid's Yellow Dent

The Ideal Reid Type

The type of corn which Mr. Reid regarded as ideal is shown in the photograph on this page. This may surprise some who are familiar only with the strains of Reid's that have been developed in recent years through selection by other breeders. It will be noted that it is not as deeply dented nor as rough as much of the modern Reid's—that it approaches somewhat the type known as utility corn grown the past three or four years in Illinois and to some extent in Ohio and Iowa. Mr. Reid never favored the extremely rough, deeply-dented, and "pretty-ear" type that was developed principally after 1905 by the corn shows; he did not believe that it would yield as much as the plainer "World's Fair corn," and he held that belief as long as he lived. He grew corn for yield, and while no one ever had a keener appreciation of beauty, he believed that the prime purpose of growing corn was to put the most bushels of good corn in the crib.

This is the type of corn which Mr. Reid regarded as ideal

211



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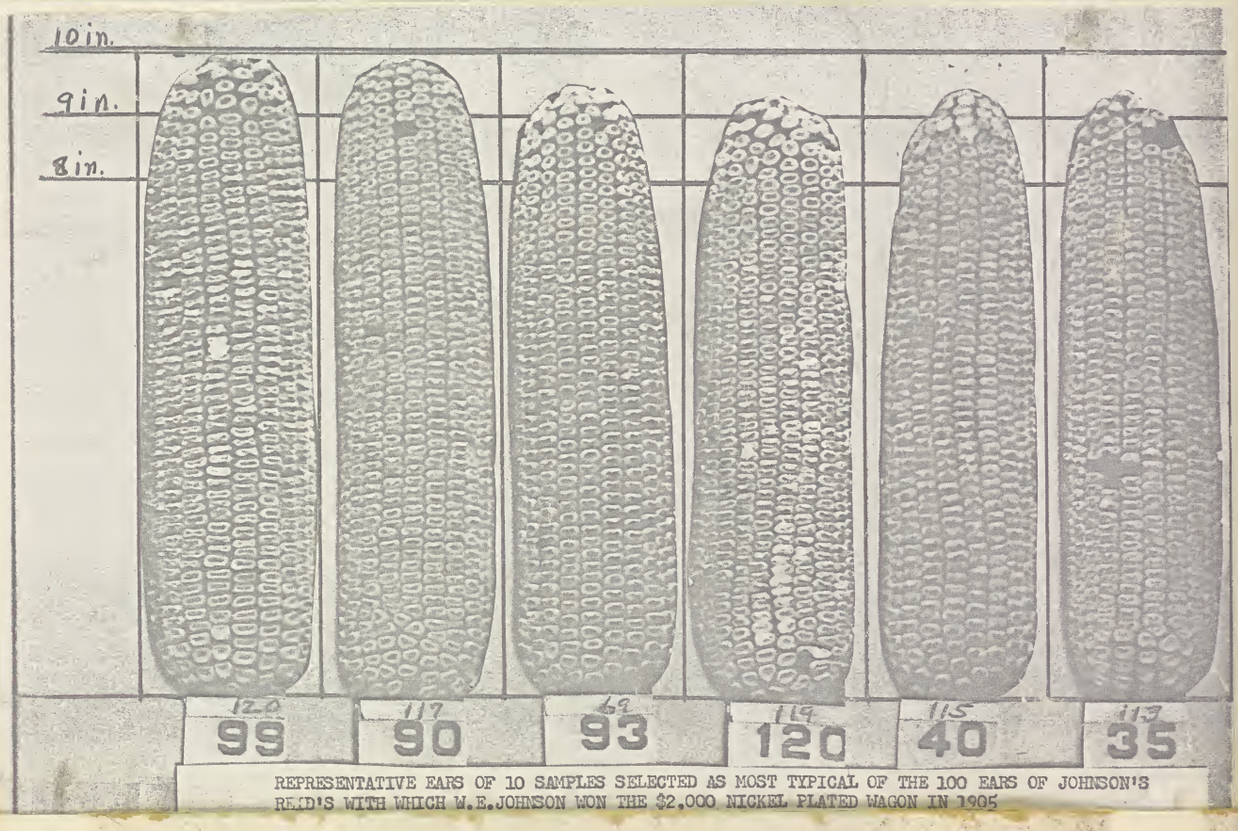
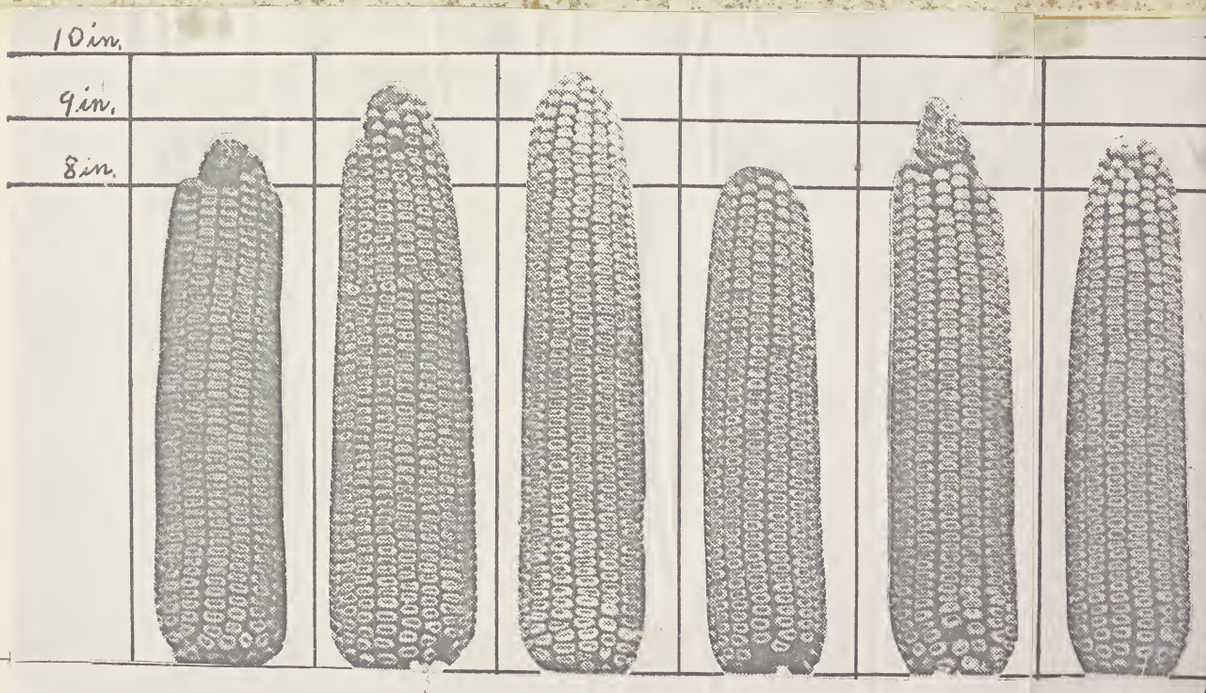
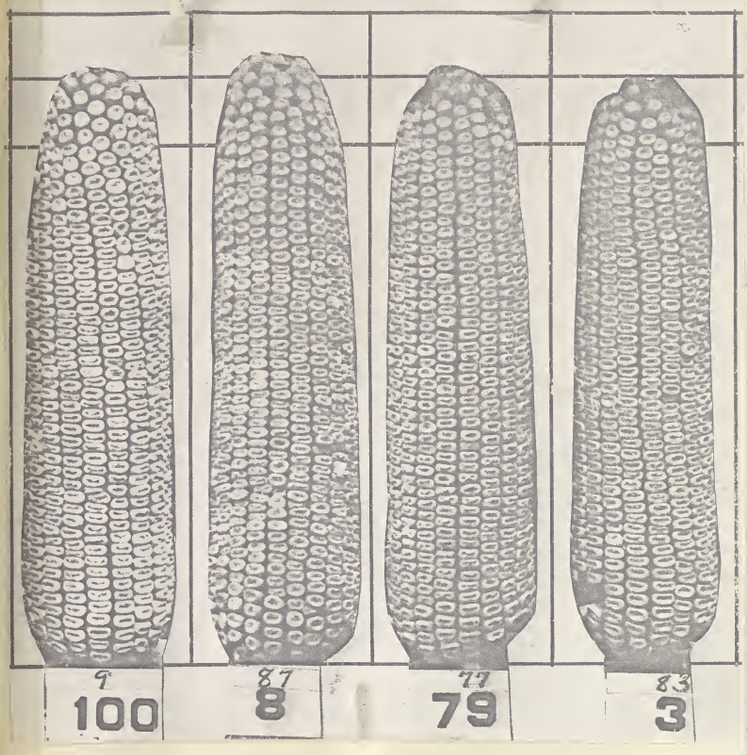
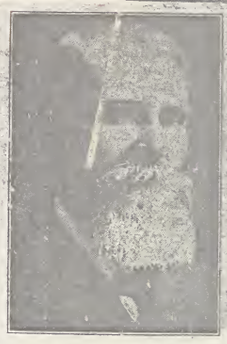


REPRESENTATIVE EARS OF 10 SAMPLES SELECTED AS MOST TYPICAL OF THE 100 EARS OF JOHNSON'S REID'S WITH WHICH W.E.JOHNSON WON THE $2,000 NICKEL PLATED WAGON IN 1905



TEN EARS OF KRUG CORN, No. 1-62, SELECTED BY GEORGE KRUG IN 1923 AS TYPICAL OF HIS CHOICE OF SEED EARS





James Reid of Tazewell county, Ill., who perfected Reid's Yellow Dent

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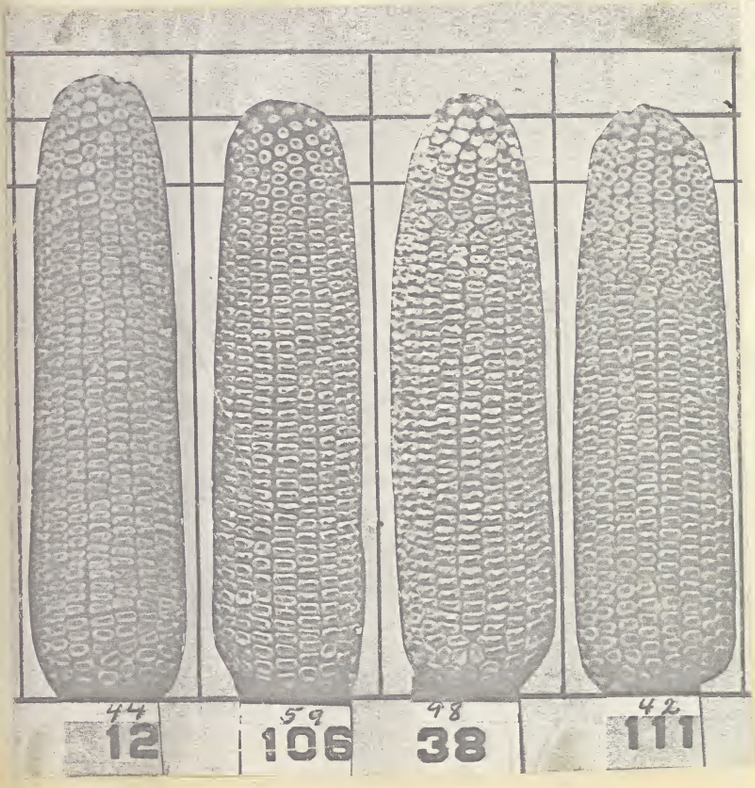
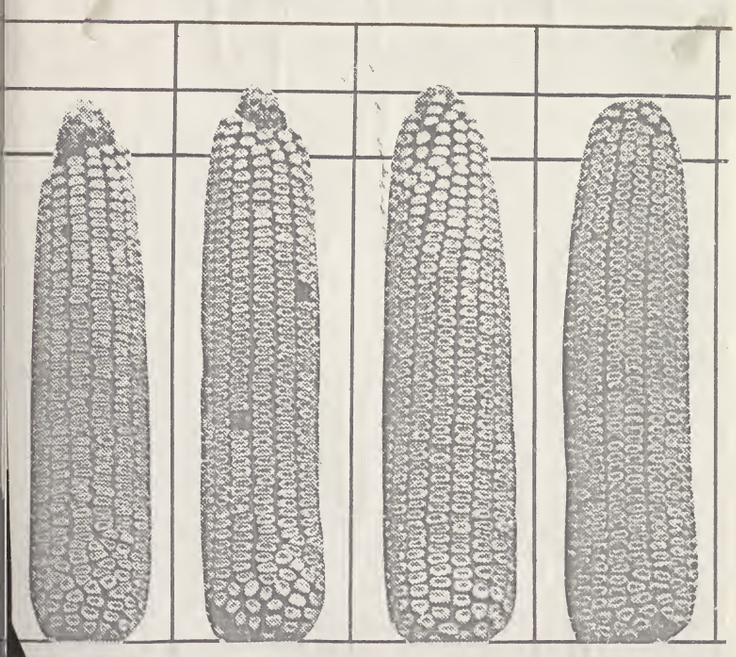
This is the type of corn which Mr. Reid regarded as ideal





KRUG'S CORN, JAMES REID'S CORN and JOHNSON'S REID'S YELLOW DENT

compared as regards

BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of Krug's corn ●	James Reid's corn ▲	Johnson's Reid's corn ○	Best or most favored 1	2	3	4	5	6	7	8	9	Poorest or least favored 10	See pages of Vol.II
Items that required field or laboratory tests														
Bushels per acre	78.1	71.5	69.0	High 78.1 ●				Median 71.7 ▲				○	Low 61.0	122-, 125
Percent of good corn	89.7	90.1	89.0	High 92.7				▲	● ○		○		Low 85.8	126-129
Percent of moisture	20.3	21.5	22.1	Low 17.9 ●					21.4 ▲	○			High 24.9	130-133
Percent of shelled corn	86.3	85.4	86.1	High 87.3 ●		○			85.8		▲		Low 84.5	134-137
Density of shelled corn	35.5	34.1	33.6	Heavy 35.6 ●					34.2 ▲			○	Light 32.4	138-141
Germination index	86.7	87.1	71.1	High 93.8				▲	87.1 ●				Low ○64.5	142-145
Disease index	79.8	80.8	60.6	Little 90.2 ● ▲					75.7				Much ○58.3	146-149
Weight of ears	12.48	13.0	13.8	Heavy 15.07 ○			▲		12.75	●			Light 10.35	150-153
Items observed by oldtime corn judges														
Density of ears	39.91	39.30	39.34	Heavy 42.03			●		Median 39.54	▲ ○			Light 37.58	154-157
Kernel development	62.2	57.1	50.9	Good 78.6		●			56.4 ▲			○	Poor 38.3	158-161
Indentation index	35.0	42.6	65.6	Smooth 16.5 ●					44.7 ▲				Rough ○87.3	162-165
Length of kernels	13.74	13.46	14.25	Long 15.72 ○		●			13.41 ▲				Short 12.47	166-169
Width of kernels	7.83	7.89	7.73	Wide 9.01					7.92 ▲	●	○		Narrow 7.12	170-173
Thickness of kernels	4.12	4.23	4.18	Thick 4.42			▲		4.21 ○			●	Thin 3.85	174-177
Length of ears	8.75	9.04	9.04	Long 9.67 ▲ ○					8.96		●		Short 8.25	178-181
Diameter of ears	2.133	21.61	22.23	Small 2.012				●	2.137	▲		○	Large 2.304	182-185
No. of rows of kernels	17.8	18.9	19.5	Small 14.9			●		18.3	▲		○	Large 2.09	186-189
Color of shank index	68.3	62.8	64.0	White 86.7			▲	●	67.7	○			Dark 36.7	190-193
Condition of shank index	58.3	36.2	40.1	● Smooth 58.3				○	38.4	▲			Rough 18.3	194-197
Variation index	7.0	7.5	6.6	Uniform 3.0				●	7.0	▲			Uneven ○11.0	198-201
SCORE	+2.4	-2	-16	+24				±0	▲			○	-34	

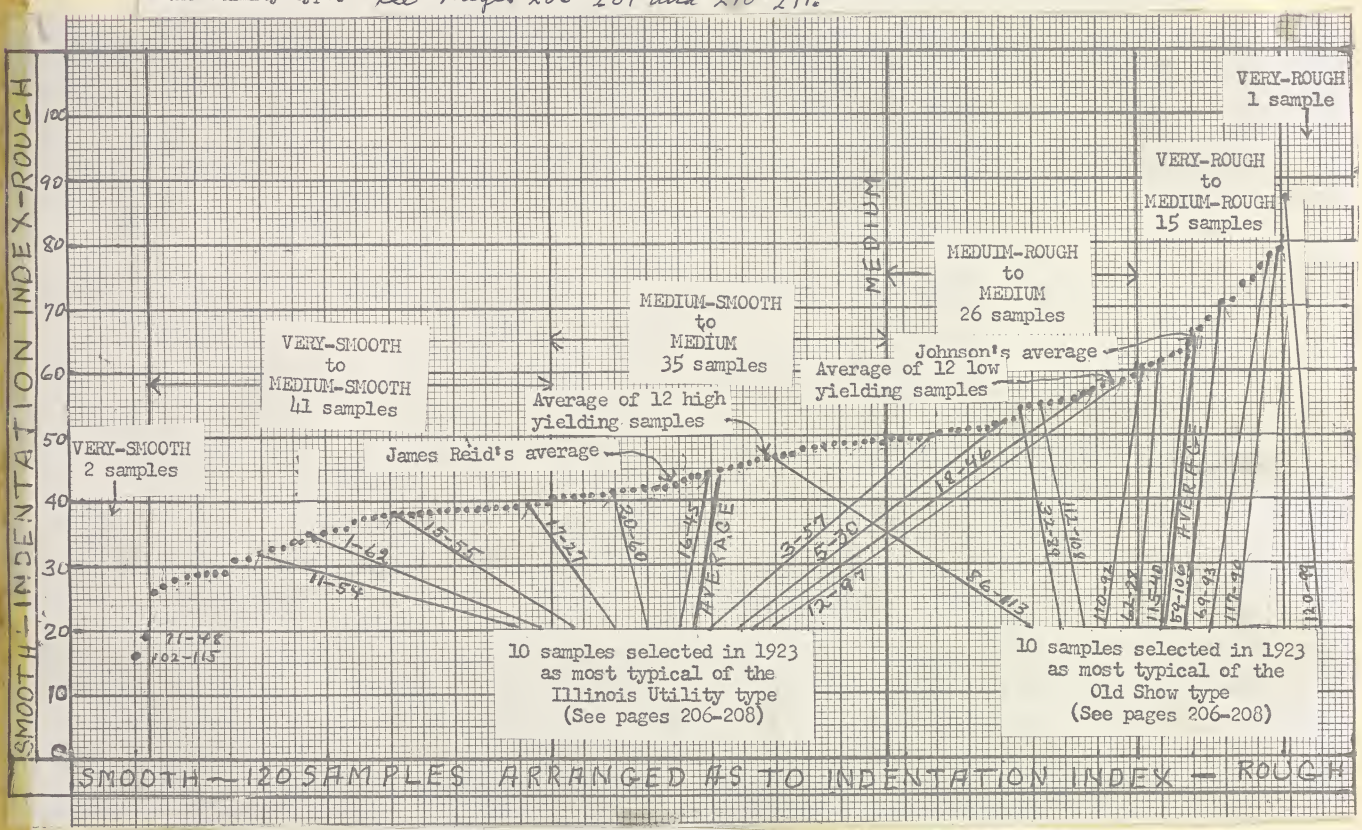
★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.

RELATIVELY FEW WOODFORD COUNTY FARMERS
WERE LED FAR ASTRAY BY
OLDTIME CORN JUDGES

The recorded data of the Woodford County Corn Yield Test indicate that most farmers who entered seed in the test were growing corn for feed and were not influenced as much by the corn show winnings of their neighbors and the recommendations of oldtime corn judges as by the selections of their nearby Tazewell County neighbor, James Reid, and by a few persons who were making field and laboratory tests as guides to the development of "Disease Free" or "Utility Type" strains of corn.

Leading in that development in Illinois were Dr. J.R. Holbert, corn breeder of the United States Department of Agriculture, who was stationed at the Funk Brothers Seed Compnay Research Farm near Bloomington, Dr. W.L. Burlison, Head of the Department of Agronomy, Professor J.C. Hackelman, Farm Crops Specialist of the Illinois Extension Service and a few members of small seed companies.

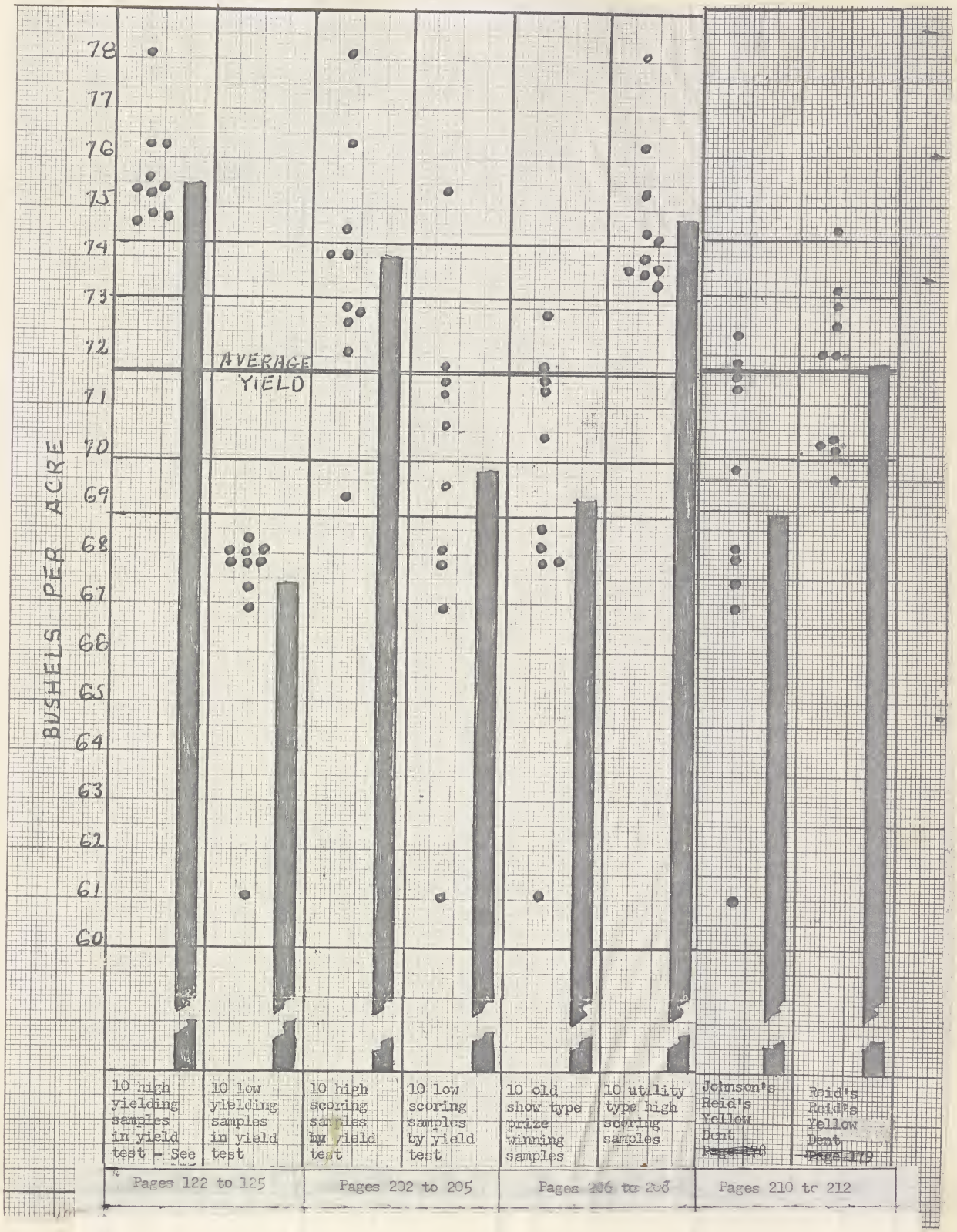
It is really a surprise to this author, after fifty years of study of these data, to realize how few of the 120 samples entered in the test were of the large eared, rough dented, deep-grained types illustrated by the simulated sample of Johnson's Reids Yellow Dent and the old show types; and how many were selecting toward the more slender ears with medium deep kernels and medium smooth to medium rough kernels as shown in the simulated James Reid's sample and the Utility type. See pages 206-209 and 210-211.



That choice of Woodford County farmers is shown by this chart. It shows the distribution of the 120 samples from very-smooth to very-rough degrees of indentation. Note that only two, No.102-115 and No.71-48, were in the very-smooth class and only one, No.120-99, was very-rough; however another, No.117-90, was only a fraction of a point under very-rough.

The chart shows also by the fan shaped diagrams the degree of indentation for each of the ten samples selected in 1923 as most typical of the Old Show type and the Illinois Utility type. Note by the sample numbers that five of the Utility type samples were among the 12 high yielding samples and that the other five were from 16th to 20th in yield. The owner of No.15-55 had the championship ten-ear sample at the first Illinois Utility Corn Show in 1920. Also notice that, in marked contrast to the above, five of the Old Show type samples were among the 12 low yielding samples, and only two, No.32-39 and No.59-106, were above average in yield. Samples No.120-99 and No.117-90 which were the roughest of all 120 samples and which were lowest and fourth from lowest in yield were entered by two of the most consistant winners at the National Corn Show.

Furthermore the chart shows average indentation indexes of: (1) The ten Utility type and ten Old Show type samples; (2) The 12 high and the 12 low yielding samples, and (3) The James Reid's and Johnson's Reids Yellow Dent simulated samples.


BUSHELS PER ACRE
78
77
76
75
74
73
72
71
70
69
68
67
66
65
64
63
62
61
60
AVERAGE YIELD
10 high yielding samples in yield test - See Pages 122 to 125
10 low yielding samples in yield test
10 high scoring samples by yield test
10 low scoring samples by yield test
Pages 202 to 205
10 old show type prize winning samples
10 utility type high scoring samples
Pages 206 to 208
Johnson's Reid's Yellow Dent Page 178
Reid's Reid's Yellow Dent Page 179
Pages 210 to 212

RELATIVE YIELDS AND QUALITY OF CORN GROWN DURING NORMAL, POOR AND GOOD CORN GROWING YEARS

(This is not a satisfactory analysis but I considered it worth including in this study)

There was a definite variation in the average yield and quality of the 120 lots of seed from year to year. The average yield of all samples was 71.7 bushels per acre per year. The variation in yield from year to year was, 1919, 68.9 bushels; 1920, 61.9 bushels and; 1921, 82.8 bushels.

The average yield in 1921 was 20.9 bushels more than in 1920. The corn was grown both years on the farms of two of the best corn growers in Woodford County. On the following pages, 214 and 215, are Xerox copies of; (1) typical ears of 5 samples that produced high yields both years of 1920 and 1921; (2) ears of 5 samples that produced low yields both years; (3) ears of 5 samples that produced high yields in 1920, the poor year and low yields in 1921, the good year, and (4) ears of 5 samples that produced low yields in 1920 and high yields in 1921. Note that sample No. 118-74 appears in both groups 2 and 4.

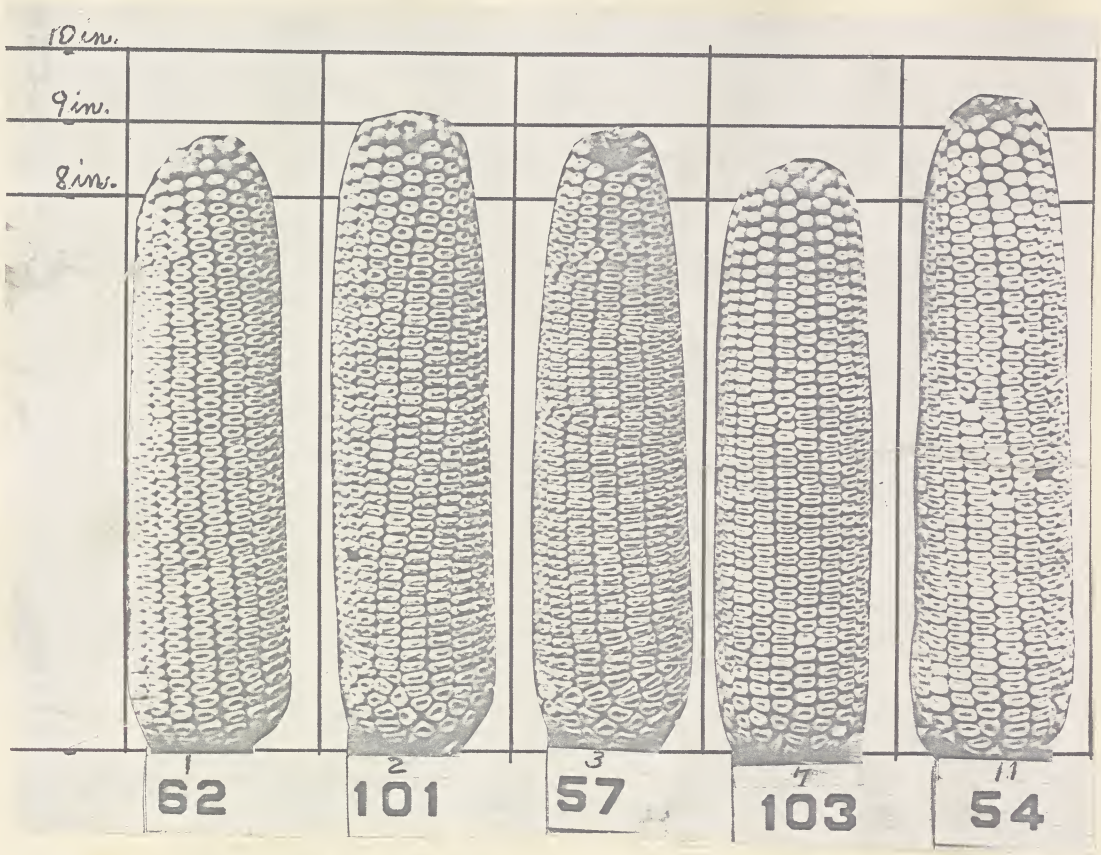
Complete datd for each of the five samples in each of the four groups is shown on pages 216 and 217. A careful study of these data shows that the quality of the high yielding samples is appreciably better thab that of the low yielding lots. For illustration, the elevator manager where George Krug delivered his corn told me, "George Krug's corn always grades one or two grades better than that of most of his neighbors".

Note that the judges' score of groups 1 and 3 are +16 and +14 respectively and that the scores of groups 2 and 4 are -8 and -12. This indicates a better quality for the high yielding samples. See pages 216-219.

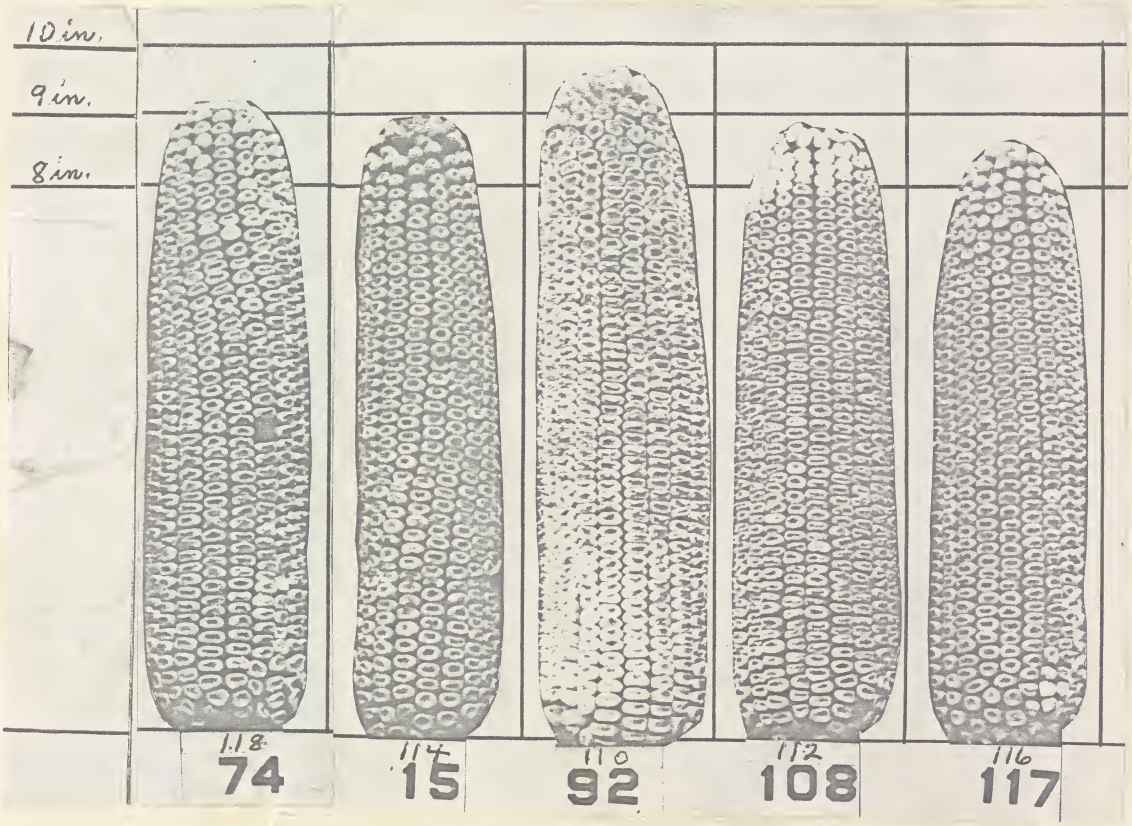
EARLY WORK WITH CORN IN MEXICO AND RUSSIA

It was as early as 1908, fourty years before President Truman announced his Point IV program of aid to developing countries, that Professor P.G. Holden then Head of the newly formed Agricultural Extension Service received a letter from a man in Mexico who was close to the government of the longtime Dictator President Diaz asking him if he would come down and help develop their corn crop and to study the possibility of ~~~~ an extension Service in Mexico. He asked me to go in his place. It was too much to ask of a young man only three years after graduation but I went in June, 1908. Two years later Dr. Louis G Michael A graduate of Michigan State University and Head of Agricultural Chemistry at the Iowa Stats University went to Russia on a similar assignment. (See Early Iowa Corn Yield Tests and Later Related Programs).

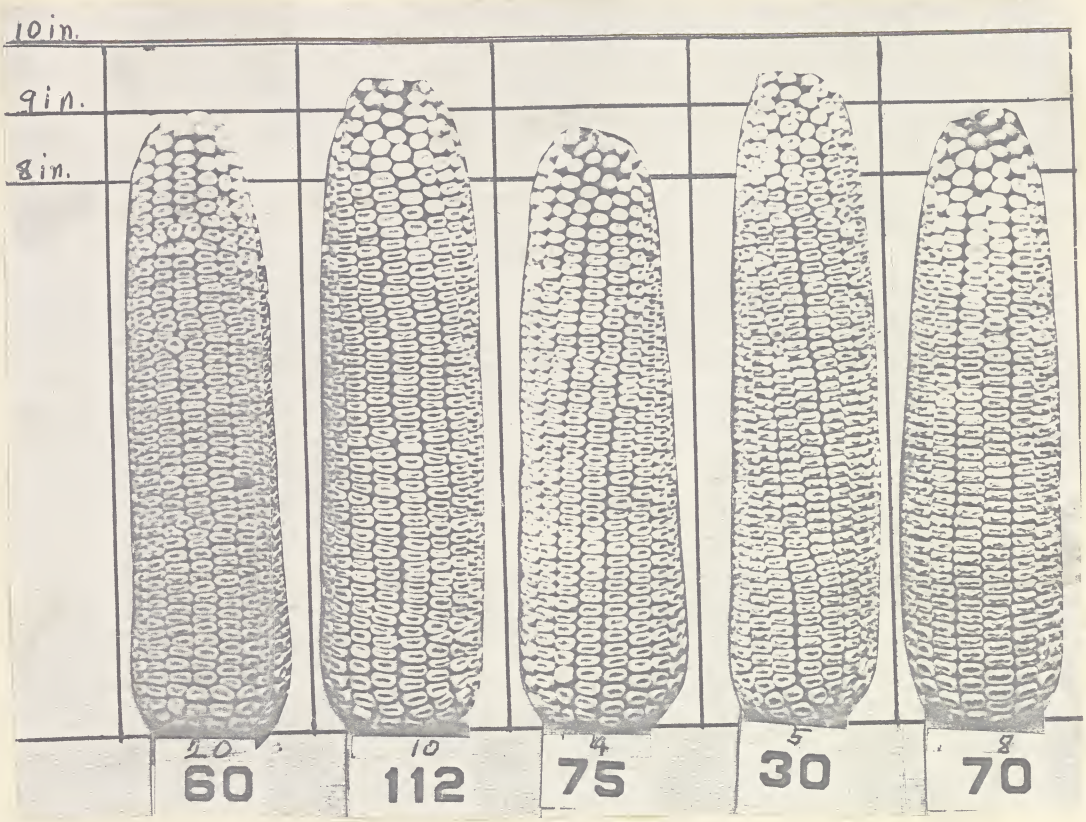
Both Michael and I started with much the program that Holden had started in Iowa in 1903 and 1906. Such programs in both countries might well have led to the development of superior inbreds. However the Revolutions developed in both countries and both projects were abandoned. Dr Michael spent the rest of his active life in the service of our government in eastern Europe. I returned to the Extension Service in Iowa and continued in that Service until repirement in 1950.



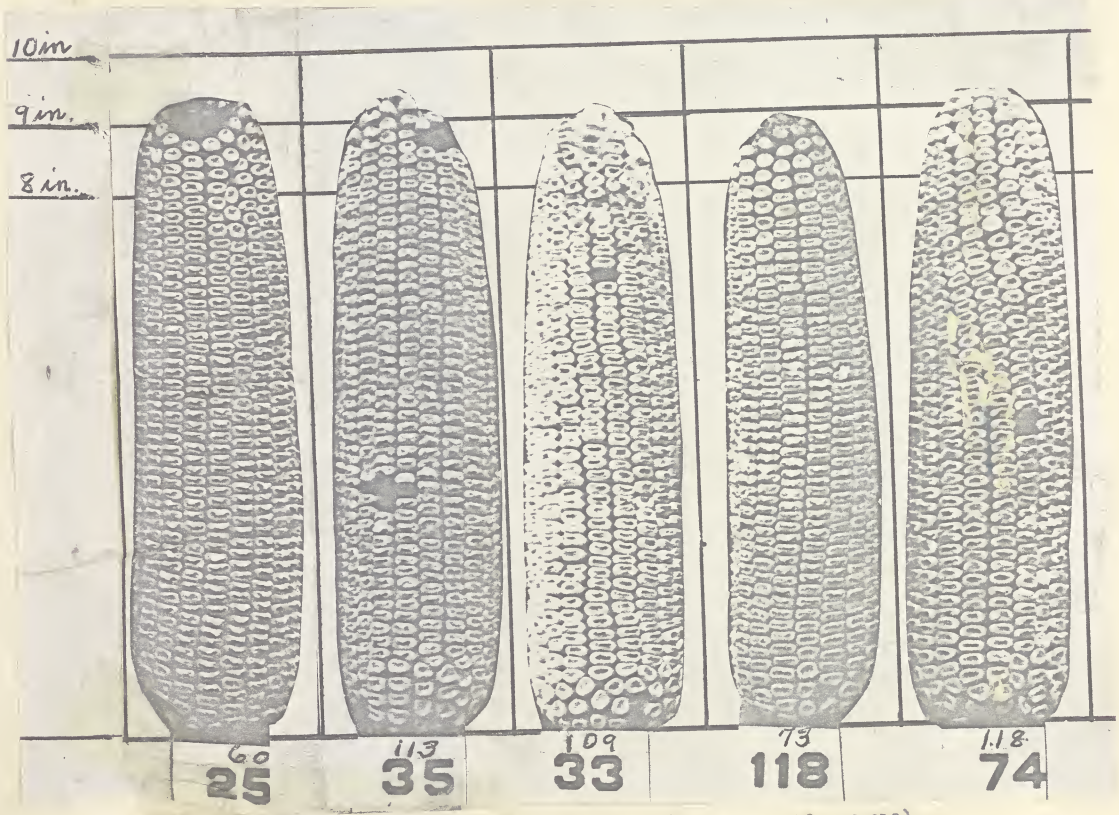
HIGH YIELDS ALL THREE YEARS (See pages 218 and 219)



LOW YIELDS ALL THREE YEARS (See pages 218 and 219)



HIGH YIELDS IN 1920 - LOW YIELDS IN 1921 See pages 218 and 219)



LOW YIELDS IN 1920 - HIGH YIELDS IN 1921 (See pages 218 and 219)

SEASONAL DIFFERENCES IN YIELD AND QUALITY OF CROP

3 year average Rank	3 year average Yield	1919 Rank	1919 Yield	1920 Rank	1920 Yield	1921 Rank	1921 Yield	% good	% water	% shelled	Density kernel	Germ. index	Dise's index	Weight of cer	
HIGH YIELD ALL THREE YEARS															
1-62	78.1	7	75.0	1	71.8	6	87.6	89.7 6+1	20.3 2+3	86.3 2+1	35.5 1+5	86.7 6-1	79.8 3+1	12.48 7+1	+11
2-101	76.3	4	75.4	12	65.4	2	88.2	90.6 3+3	19.4 1+3	87.3 1+1	33.9 8-1	92.2 2+3	68.8 9-1	12.93 5+1	+9
3-57	76.3	24	73.0	4	68.3	7	87.6	88.9 8-1	20.8 4+1	87.1 1+1	34.0 7-1	90.5 3+3	73.3 7-1	12.47 7+1	+3
7-103	75.3	13	74.0	14	65.2	8	86.7	90.2 4+3	21.1 4+1	85.5 7+1	34.2 6-1	91.7 2+3	81.4 2+1	12.32 8-1	+7
11-54	74.5	8	74.6	30	63.9	29	84.9	90.3 4+3	22.3 8-1	86.0 4+1	35.2 1+5	80.5 10-1	70.7 8-1	13.57 2-3	+3
48-75 average	76.1	11.2	74.4	12.2	66.9	10.4	87.0	89.9 5+3	20.8 4+1	86.6 1+1	34.6 3+1	88.3 4+1	74.9 6+1	12.75 5+1	
LOW YIELDS ALL THREE YEARS															
118-74	67.3	115	63.6	115	57.0	84	81.4	85.9 10-7	21.5 6-1	85.2 9-3	34.7 2+1	80.7 10-1	70.2 8-1	13.20 3-3	-15
114-15	68.0	111	65.2	107	57.7	88	81.1	89.7 6+1	21.2 5-1	85.9 4+1	34.0 7-1	86.0 7-1	83.6 2+1	11.63 10-1	-1
110-92	68.5	102	67.1	101	58.3	100	80.2	89.5 6+1	23.2 10-5	84.7 10-5	33.1 10-5	81.2 9-1	67.4 9-1	14.92 1-3	-19
112-105	68.1	106	64.3	89	59.9	112	78.0	89.0 8-3	21.1 5-1	86.7 1+1	34.2 6-1	93.3 1+1	73.3 7-1	13.55 2-3	-7
116-117	67.9	63	69.7	117	56.1	113	78.0	88.1 10-7	21.9 7-1	85.3 8-1	34.0 7-1	89.3 4+1	69.5 8-1	11.93 9-1	-11
11.8 average	68.0	99	66.4	106	57.8	99.4	79.7	88.4 9-3	21.8 6-1	85.5 7+1	34.0 6-1	86.1 7-1	72.8 7-1	13.05 4-1	
HIGH YIELDS IN 1920 - LOW YIELDS IN 1921															
20-60	73.6	64	69.6	2	71.2	102	79.9	89.8 5+3	20.4 2+3	86.2 3+1	33.8 3+1	82.6 9-1	76.4 5+1	12.18 8-1	+7
10-112	74.7	21	73.3	3	69.8	90	81.0	89.2 8-1	21.5 6-1	86.6 1+1	34.0 7-1	90.7 3+3	67.6 9-1	13.03 4-1	-1
4-75	75.6	5	75.4	5	67.6	57	83.8	89.2 7-1	18.9 1+2	85.6 7+1	35.3 1+5	91.6 2+3	76.2 5+1	11.70 10+1	+11
5-30	75.4	11	74.3	6	67.5	45	84.4	89.9 5+3	20.5 3+3	85.7 6+1	34.5 3+1	92.1 2+3	73.7 7-1	12.33 8-1	+9
8-70	74.9	6	75.3	7	67.4	78	81.9	89.9 5+3	20.1 2+3	85.7 6+1	34.4 3+1	90.8 3+3	74.0 7-1	12.33 8-1	+9
9.4 69.4 average	74.8	21.4	73.6	4.6	68.7	74.4	82.2	89.6 5+3	20.3 2+3	86.0 4+1	34.4 3+1	89.6 4+1	73.6 6+1	12.31 8-1	
LOW YIELDS IN 1920 - HIGH YIELDS IN 1921															
60-25	71.7	43	70.9	106	58.1	12	86.2	85.8 10-7	22.7 9-3	86.0 4+1	32.9 10-5	87.6 5+1	72.4 8-1	14.53 1-3	-17
113-35	68.1	117	63.1	111	57.3	52	84.0	90.2 4+3	22.5 8-1	85.6 7+1	34.0 7-1	91.0 2+3	74.3 7-1	13.12 4-3	+1
109-33	68.7	113	64.8	105	58.1	62	83.2	91.4 1+1	21.1 4+1	89.5 10-5	34.9 2+1	87.9 4+1	76.0 5+1	12.23 8-1	-1
73-118	70.9	114	64.1	54	62.4	11	86.3	88.7 9-3	18.7 1+3	86.3 2+1	33.2 8-1	84.7 8-1	76.2 5+1	10.93 10-1	-1
118-74	67.3	115	63.6	115	57.0	84	81.4	85.9 10-7	21.5 6-1	85.2 9-3	34.7 2+1	80.7 10-1	70.2 8-1	13.20 3-3	-15
94.6 average	69.3	100	65.3	98.2	58.6	44.2	84.2	88.4 9-3	21.3 5-1	86.5 1+1	33.9 8-1	86.4 6-1	73.8 7-1	12.80 5+1	

Density of ear	Kernel dev'n	Dent index	Length kernel	Width of k'l	Thick of k'l	Length of ear	Diam'r of ear	Rows of k'ls	Color shank	Cond'n shank	Variation	
39.91	62.2	35.0	13.74	7.83	4.12	8.75	2.133	17.8	68.3	58.3	7.0	
4+5	3+1	2+3	3+3	7-1	9+1	8+1	5+1	4+1	5+1	1+7	5+1	+24
40.98	70.7	60.7	13.86	7.68	4.17	8.83	2.133	18.9	66.7	50.0	5.0	
1+3	1+3	9-1	2+3	8-1	7+1	7+1	5+1	7-1	5+1	2+3	1+1	+14
40.30	53.6	50.0	13.82	8.25	4.11	8.79	2.119	16.8	61.7	56.7	8.0	
3+5	8+1	7-1	2+3	3+1	9+1	8+1	4+1	2+1	8-1	1+7	8-1	+18
40.61	46.4	35.2	13.06	7.71	4.15	8.69	2.117	18.4	65.0	48.0	8.0	
2+3	10-7	2+3	9-1	8-1	8+1	8+1	4+1	6+1	7+1	5+1	7-1	+2
41.99	66.4	32.0	13.21	7.94	4.28	9.33	2.100	18.1	66.7	51.7	7.0	
1+3	2+3	2+3	7+1	5+1	3+1	1-1	3+1	5+1	6+1	1+7	5+1	+22
40.76	54.9	42.6	13.54	7.82	4.17	8.88	2.120	18.0	65.7	51.3	7.0	
2+3	4+1	5+1	4+1	6+1	7+1	6+1	4+1	4+1	6+1	2+3	4+1	+16
39.62	58.8	51.0	13.36	7.70	4.13	8.83	2.192	19.2	51.7	41.7	10.0	
5-1	4+1	8-1	4+1	8-1	8+1	7+1	9-3	8-3	10-1	5+1	10-1	-6
40.01	58.6	48.5	13.34	7.91	4.13	8.33	2.108	18.7	61.7	43.4	8.0	
3+5	5+1	6-1	6+1	6+1	8+1	10-3	3+1	7-1	8-1	3+1	8-1	+4
38.61	68.1	60.2	14.26	8.38	4.21	9.54	2.271	18.0	78.3	25.0	6.0	
9-3	1+3	9-1	1-5	2+1	5+1	1-1	10-3	4+1	2-1	10-1	2+1	-8
40.81	49.4	55.2	14.10	7.59	3.95	8.67	2.208	19.8	55.0	35.0	6.0	
1+3	10-7	8-1	2+3	9-3	10-5	4+1	9-3	9-5	10-1	7-1	2+1	-18
40.37	56.2	54.7	13.47	7.56	4.04	8.33	2.125	19.9	60.0	33.3	7.0	
2+3	9-3	8-1	5+1	10-5	9+1	10-3	4+1	9-5	8-1	8-1	5+1	-12
39.88	57.2	53.9	13.71	7.83	4.09	8.74	2.181	19.1	61.3	35.7	7.4	
3+5	5+1	8-1	3+1	7-1	9+1	8+1	8-1	7-1	8-1	7-1	7-1	+2
40.22	56.2	41.5	13.15	8.05	4.05	8.42	2.079	17.1	63.3	36.7	7.0	
3+5	6+1	5+1	8-1	4+1	9+1	6+1	2+1	2+1	7+1	7-1	4+1	+12
38.02	52.4	37.5	13.61	8.22	4.17	9.08	2.192	18.2	71.7	46.7	9.0	
10-5	8+1	3+3	4+1	3+1	7+1	4+1	9-3	5+1	4+1	2+3	10-1	+4
40.78	64.1	38.7	12.98	7.91	4.22	8.42	2.083	17.2	51.7	51.7	6.0	
1+3	2+3	3+3	9-1	6+1	5+1	10-3	2+1	2+1	10-1	1+7	2+1	+16
40.03	65.5	52.2	13.45	7.90	4.19	8.46	2.092	17.8	68.3	46.7	9.0	
3+5	2+3	8-1	5+1	6+1	6+1	6+1	3+1	4+1	5+1	2+3	10-1	+16
40.12	56.9	49.7	13.17	8.15	4.35	8.58	2.133	17.3	66.7	46.7	6.0	
3+5	5+1	7-1	8-1	3+1	1+1	9+1	5+1	3+1	6+1	4+1	2+1	+12
39.83	59.0	43.4	13.27	8.05	4.20	8.79	2.116	17.5	64.3	45.7	7.4	
3+5	4+1	5+1	7+1	4+1	6+1	7+1	4+1	3+1	7+1	5+1	7-1	+14
38.57	52.4	74.5	14.67	7.71	4.18	9.17	2.287	20.5	80.0	38.4	7.0	
9-3	8+1	10-7	1-5	8-1	6+1	2-1	10-3	10-5	1-1	5+1	3+1	-22
38.75	45.0	59.2	13.76	7.57	4.03	8.83	2.208	19.9	53.3	43.3	7.0	
9-3	10-7	9-1	3+3	9-3	10-5	7+1	9-3	10-5	10-1	3+1	5+1	-22
39.38	56.4	49.7	12.93	8.04	3.99	8.79	2.121	17.9	76.7	36.7	9.0	
6-1	6+1	7-1	9-1	4+1	10-5	7+1	4+1	4+1	2-1	7-1	10-1	-6
38.95	50.0	70.2	13.89	8.13	4.05	8.50	2.050	16.7	71.7	33.3	6.0	
8-1	9-3	10-7	2+3	3+1	9+1	10-3	1+1	2+1	4+1	8-1	3+1	-6
39.62	58.8	51.0	13.50	7.70	4.13	8.83	2.192	19.2	51.7	41.7	10.0	
5-1	4+1	8-1	4+1	8-1	8+1	7+1	9-3	8-3	10-1	5+1	10-1	-6
39.05	52.5	60.9	13.75	7.83	4.08	8.82	2.172	18.8	66.7	38.7	7.8	
8-1	8+1	9-1	3+1	7-1	9+1	7+1	8-1	6+1	6+1	5+1	7-1	±0

WHAT THE SCALES AND THE BABCOCK TESTER DID FOR DAIRY PRODUCTION
THE
SCALES AND MOISTURE TEST MAY HAVE DONE FOR CORN

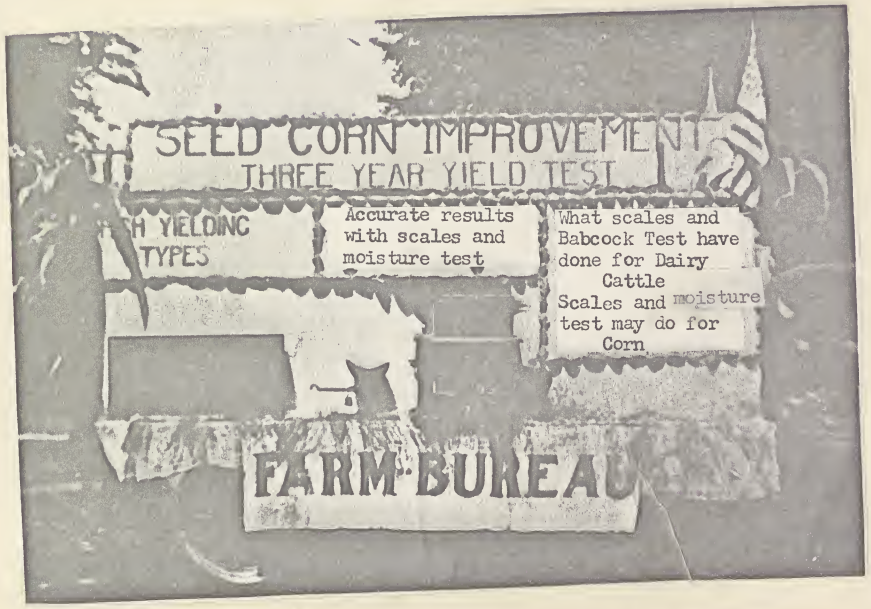
This author has never made any study of genetics in relation to hybrid corn. This is evident to those who have so studied. However it has been just as evident to me from the first use of hybrids that much of their superior value was and is due to other things than hybrid vigor; namely, (1) timely and careful selection in the fall, (2) careful storage over winter, (3) careful testing for germination and disease of seedlings, (4) grading of shelled seed to fit planter plates and, (5) dust treatment to help control disease in the planted seed.

The value of laboratory and field tests (1) to (4) had showed in similar tests of seed used in the Farmers' Variety Tests made under leadership of Professor P.G.HOLDEN in Iowa from 1903 to 1915. (See Early Iowa Corn Yield Tests And Later Related Programs.) At least two Farm Bureaus, Marshall-Putnam and Ford in Illinois, organized cooperatives for the sole purpose of applying those four objectives to their seed. The farmers harvested their seed in the fields before danger of freezing and brought it to the storage place which could be heated and ventillated. During the winter such seed was, (1) single-ear tested for disease as well as for germination, (2) shelled, (3) graded, (4) and dust treated. Thus, several practices that continue to give commercial hybrids superior seed value were being used to give open pollinated seed increased value.

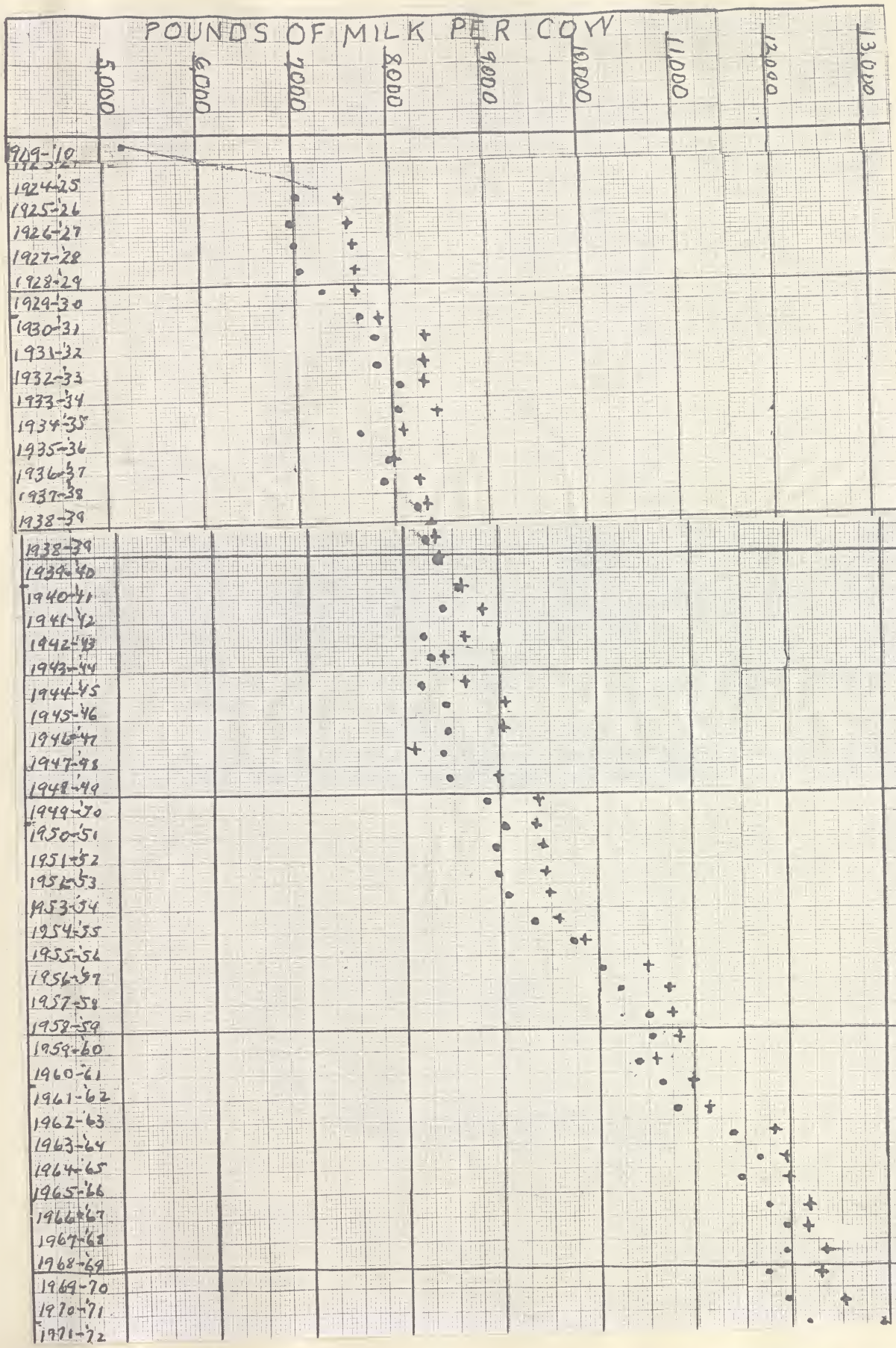
Such cooperatives were just getting under way and many thousands of corn-belt farmers were following such practices on their own when commercial hybrids were introduced and within a few years had taken over the seed corn business. In 1923 after the cuccessful close of the Woodford County Corn Yield Test I tried to interest leaders in Agronomy in Illinois and Iowa and the United States Department of Agriculture in forming many such cooperatives across the Corn Belt. My plans included field tests like those conducted in Clinton and Woodford Counties.

Years after, Henry A. Wallace said that it was very unfortunate that the plan did not materialize: it would have brought to light many sources of excellent inbreds.

(Continued on page 223)



This float built around an old Model T Ford was entered by the Woodford County, Illinois, Farm Bureau in a parade celebrating the 10th anniversary of the founding of the DeKalb County Farm Bureau in 1912. It is a poor photo but it helps tell a good story.


POUNDS OF MILK PER COW
5,000
6,000
7,000
8,000
9,000
10,000
11,000
12,000
13,000
1909-10
1924-25
1925-26
1926-27
1927-28
1928-29
1929-30
1930-31
1931-32
1932-33
1933-34
1934-35
1935-36
1936-37
1937-38
1938-39
1938-39
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1941-42
1942-43
1943-44
1944-45
1945-46
1946-47
1947-48
1948-49
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1951-52
1952-53
1953-54
1954-55
1955-56
1956-57
1957-58
1958-59
1959-60
1960-61
1961-62
1962-63
1963-64
1964-65
1965-66
1966-67
1967-68
1968-69
1969-70
1970-71
1971-72

KRUG CORN AS A SOURCE OF GOOD INBREDS WAS QUESTIONED

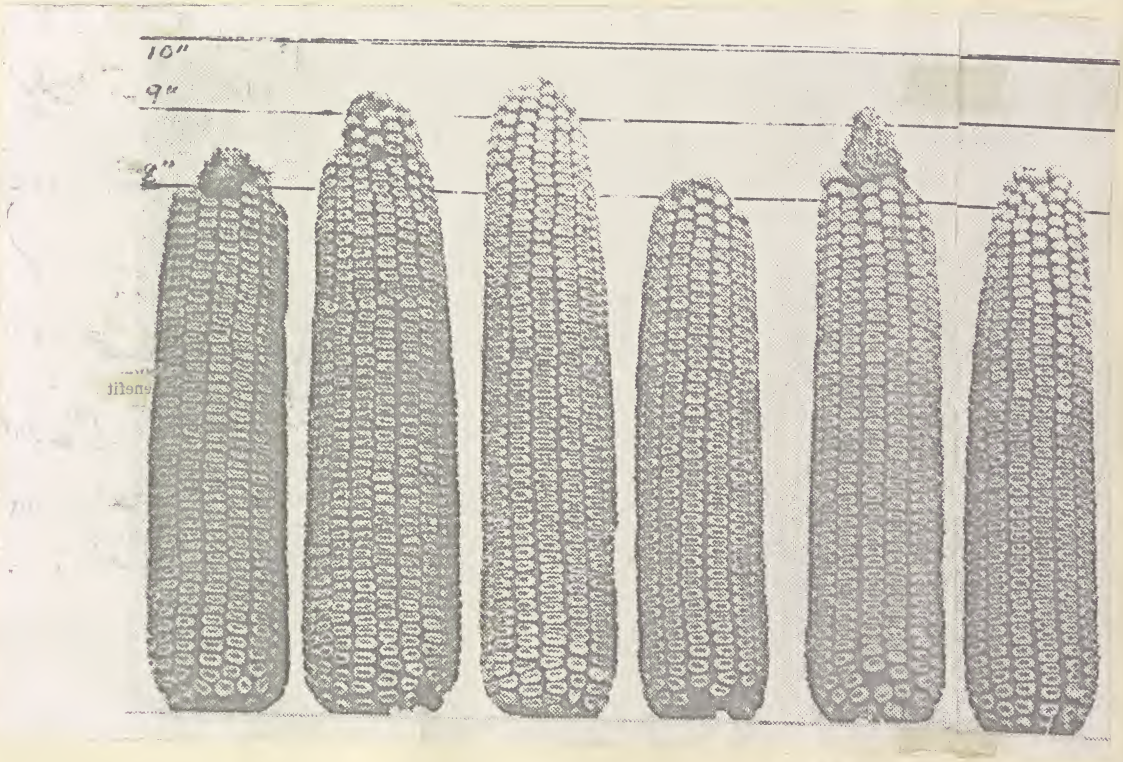
Some corn breeders in Iowa were not getting good inbreds from Krug corn, even though Henry Wallace included Krug corn along with James Reid and Isaac Hershey of Pennsylvania as the leading early sources of good inbreds. (See Corn and Its Early Fathers, Wallace and Brown, Michigan State University Press) One of the corn breeders at the Iowa State University said to this author, "We are getting some of our best inbreds from Krug corn". This situation worried me until the Iowa Experiment Station Bulletin No.265 came to my attention.

Iowa Bulletin No.265 published in 1929 was a report based on a questionaire distributed to several hundred members of the Iowa Corn Growers Association. They reported that more Krug Corn was being grown in Iowa in 1928 than any other strain of corn than had been grown in the Iowa State Corn Yield Test.

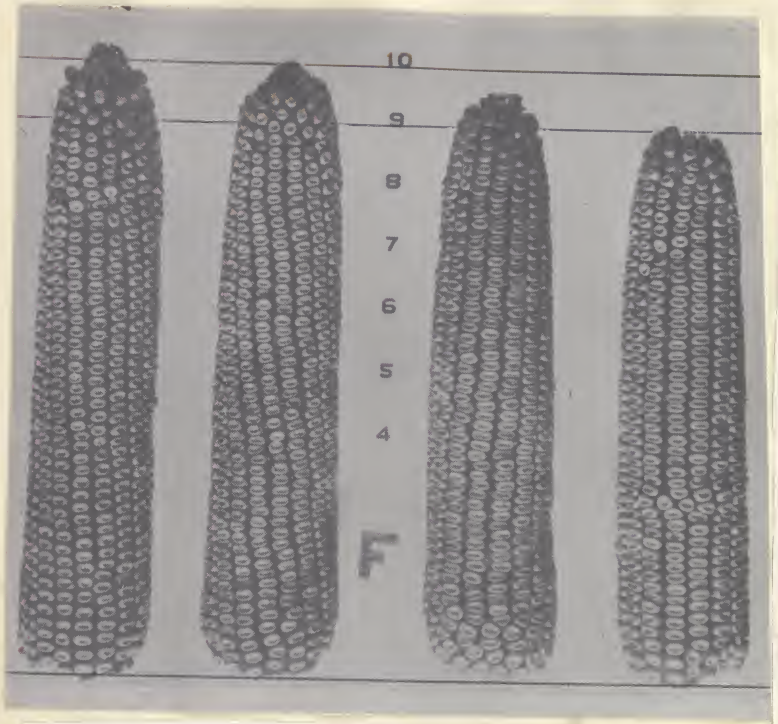
A photograph of four ears published as typical of Krug corn was shown on page 72 of Bulletin No.265. Notice that the four ears are very smooth. While this author remembers very clearly that George Krug did select a very few ears of which the photo is typical most ears in his seed were only medium-smooth to medium-rough and had medium-short to medium-deep kernels. See the photo on these pages of ten ears selected by Krug himself in 1923.

Lester Pfister, producer of the Pfister hybrids which were among the first four commercial hybrids, had assisted the author in harvesting all of the thousands of four by fifteen hill plots of corn grown during the three years of the Wood ford County Corn Yield Test. The Krugs and Pfisters lived only a few miles apart. Pfister was about 20 years old and a keen observer So, when he went to Krug to select the first 400 ears for inbreeding, he naturally selected ears of the type that Krug preferred.

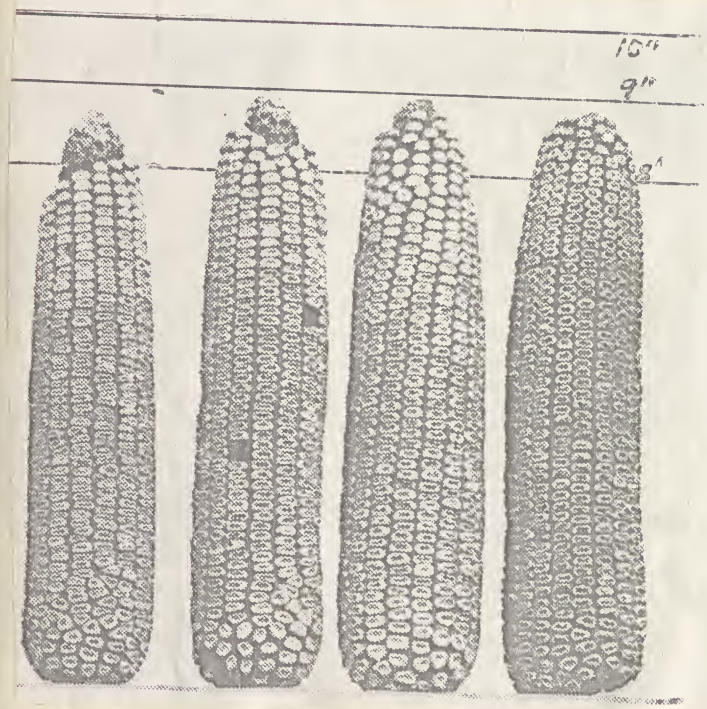
Observations at the Farm Progress Shows during the past 20 years and of advertisements of hybrids offered for sale indicate that most Cornbelt hybrids are much more like the sample selected by Krug than the one published as typical of Krug corn.



TEN EARS OF KRUG CORN SELECTED BY



Photograph of Krug corn published in Iowa Bulletin No.265



[illegible] KRUG, [illegible], IN 1923

(continued from page 220

The DeKalb County celebration was only a few years before the general introduction of hybrid corn. This author had helped with county yield under Professor P.G.Holden's leadership from 1905 to 1912 and had conducted the Clinton County, Iowa, and the Woodford County, Illinois, Corn Yield Tests form 1913 to 1922, and had done a little similar work in Mexico in 1909. (See chapters 7, 8, and 12 of "Early Iowa Corn Yield Tests and Related Later Programs). I had witnessed the organization of two of the early Cow Test Associations in Blackhawk County, Iowa, and helped organize one in Clinton County in 1914 or 1915.

The chart on page 221 shows very clearly the impvoved production of dairy dows due largely to the monthly weighing of the milk from each cow, the testing of the milk from each cow for butter-fat with the Babcock Tester and the gradual adoption of better management practices as observed on some farms by the fieldman.

I am indebted to Donald E. Voelker, Extension Dairyman in Iowa and to Leo Fryman, Extension Dairyman in Illinois for the dairy records. I was unable to obtain records in either state for the period of 1910 to 1924. However the trend lines were about the same as for 1925 to 1940.

The remarkable improvement in dairy cows was obtained without the crossing of breeds or hybridization.

Some questions: Nil. If commercial hybrids had not been developed and plans for improvement of open pollinated corn that were underway and discussed on page 220 had been enlarged across the Cornbelt, as I had hoped, would there have been improvement in yield and quality similar to that of dairy cattle? I believe there would: however they would have fallen far short in yield and quality of modern hybrids.

Question No.2. If open pollinated corn had still been in use would there have been the great loss from Southern leaf blight that was experienced a few years ago? The reader may Well ask, What is the use of this discussion? Where could we get open pollinated corn to begin with? I know of only two men who are still using open-pollinated seed. One is in Iowa. His father with whom I was well acquainted, got his seed nearly sixty years ago from a well known man whose seed was among the lowest yielding in the Clinton County Corn Field Test of 1913 to 1915. From what I have seen of this corn I would expect it to produce good yields of excellent quality. I wonder how it would compare with adapted hybrids.

The other producer of open pollinated seed is an Illinois man who has continued to use Krug corn. I know nothing more about it. I had Planned ti visit both men last fall at harvest but a long confinement in hospital and health center has prevented.

FIFTY-TWO YEARS LATER AND THE YEARS BETWEEN

Jan 11, 1922 I. A. A. News Letter No. 87

Corn In Woodford County? Well You'd Be Surprised!

Woodford county farm bureau put in a corner post last week.

On Wednesday, Thursday and Friday, a complete report and large exhibit showing the results of three years' corn work was held at Eureka.

In short 118 farmers each brought in a bushel of sample corn they were growing on their farms to the farm bureau office. For three years in succession a sample of each farmers' corn was planted on two different plots in the county and the yield determined. An average of the three year yields showed a difference of 17 bushels, difference per acre on the high and lowest yielding samples.

The twelve highest plots yielded more than the twelve lowest, and four bushels more than the average yield of all.

And Woodford county says she has a project on hand that has been going for five years which is considered even more important than the corn tests—farm management.

M. L. MOSHER.

The Illinois Agricultural Association News Letter of January 11,1922,published the item on the right regarding the final exhibit of the 120 lots of corn included in the Woodford County Corn Yield Test. The first distribution of about 100 bushels of Krug corn was made during the three days that the exhibit was open to the public. Please notice particularly the last sentence of the news item which reads,"and Woodford County says that she has a project on hand more important than the corn tests--farm management". I wonder if it did turn out to be more important. Let the reader judge for himself.

The farm management project referred to was one in which the Woodford County Farm Bureau undertook the completion of 100 farm management records each year beginning March 1,1921. Paul E. Johnson who had seen active duty in the Artillary in France during World War I was hired to take the lead in the project. Thanks to his fine cooperative personality and perseverance the project was carried out as planned. Professor H.C.M.Case as Farm Management Extension Specialist had taken leadership in developing the first successful farm account book. Essentially the same type of book is still in use and is being distributed by many thousands each year by Extension Services and banks. Professor Case used it first in 1916 which was the year that I had come to Woodford County as Farm Advisor. Woodford County was one of a half dozen counties that began the accounting project that year and continued with it. After about two years, Professor Case had a day-dream that it would be only a few years till some county would have an assistant farm adviser who would give full time to the farm accounting project. McLean County now has two fieldmen and Livingston, Tazewell and Woodford Counties one each in the Farm Business Farm Management Service.

[illegible] vention of raising our five children on a farm, as Mrs. Mosher and I had planned from the beginning of our married life. However, that was the time of the big agricultural depression which preceeded the general depression which began in 1929, and we decided that we had better stay in public service.

After serving twelve years as Crops Specialist in Iowa and ten years as Farm Adviser in Clinton County, Iowa, and Woodford County, Illinois, I resigned as of December 31, 1922, with the in-

M.L.Mosher
in
1974

From March 1,1923,to August 31 I worked part time with Dr. W.L. Burlison Head of the Agronomy Department making further studies of the seed corn used in the Woodford County Corn Yield Test. The balance of my time that six months was spent with Professor Case analysing the data and writing the Illinois Experiment Station bulletin No.252,"Increasing Farm Earnings by the use of Farm Accounts". Kenneth Myers,a graduate student helped make the study.

During the two years beginning September 1,1923, I served as Illinois Extension Specialist in Farm Management. The Farm Accounting project grew rapidly in popularity until we were working in about one-third of the Illinois counties.

During the summer of 1924 Professor Case and I decided that the time had come to make his dream of a farm managemtnt project in which the cooperating farmers would pay a part of cost of having a special fieldman for the project come true.

We visited a few leading farmers in Woodford, Livingston, McLean and Tazewell Counties and presented the suggested project. Encouraged by their response we called a meeting of farm advisers and farm leaders from each county. The meeting was at El Paso in Woodford County. Dean Mumford of the College of Agriculture and George Fox, Secretary of the Illinois Agricultural Association were present. After long discussion the group decided to undertake the project and I was asked to present it to the four farm bureau boards. Dean Mumford suggested that the organization be called the Farm Bureau Farm Management Service. Several years later when the relation between the Farm Bureau and the Extension Service was severed the name Bureau was changed to Business so that it now reads Farm Business Farm Management Service.

Selling the project to some farm bureau boards was not easy. The agricultural depression was still on. In one county after discussing the project for a long time, the final selling argument was, "If you don't vote to cooperate the project will have to be dropped". That settled it and very reluctantly they voted to cooperate. Again it fell to my lot to help the farm advisers and other leaders sell the project to 60 farmers in each of the four counties. The project almost sold itself in Woodford County, was relatively easy in Livingston but required many days of attending group meetings and driving from farm to farm in McLean and Tazewell Counties.

Meantime the Board of Directors of the Pioneer Farm Bureau Farm Management Service had asked me to become their fieldman. Just as in 1912 I had stepped down from the position of Iowa State Specialist in Farm Crops to be the farm adviser in Clinton County I stepped down in 1925 from the office of Illinois State Specialist in Farm Management to be the Farm Management Fieldman for 235 farmers. I continued as fieldman, director and doing research until I retired August 31, 1950.

The program has had a steady growth, with slowed down during World War II, from one fieldman working directly under Professor Case, 235 cooperators to near 50 fieldmen, three men and several clerks in the state office and near 7,000 cooperating farmers. The same type of work was started in Iowa, Minnesota and Kansas about 1930 and is now common in the Cornbelt and other states.

I will leave it to the reader to judge for himself whether or not the Illinois Agricultural Association News Letter was correct when it reported 52 years ago: "And Woodford County says she has a project on hand that has been going five years which is considered more inportant than the corn tests". Each project has added probably millions of dollars to income available for better family living.

WHAT OF THE RETIREMENT YEARS SINCE 1950

"All work and no play makes Jack a dull boy". The truth of that proverb has been painfully evident to me during these retirement years; especially since Mrs. Mosher and I came to the Mayflower Retirement Home ten years ago. During the past three years when conditions permitted I have spent four to six hours per day here at my desk working on these corn books, and about two hours at my carpenter's bench in the Hobby Shop. Occasionaly while in the shop I would go to the next room and watch my friends play pool. I envied them the good fellowship that I was missing.

Farm Boy's Short Course: During the three winters of 1951-52, 1952-53 and 1953-54 I taught the Farm Management course in the Farm Boys' Short Course. The basis of my lessons was a ten years study of Farm Business Farm Management Service records entitled "Why Some Farms Earn So Much More Than Others". After the second year of the Short Course, Hadley Reed, Director of Communication for the College of Agriculture, asked for a volunteer to have his lectures broadcast by radio. I accepted the challenge and for eight to ten weeks my 30 minute lectures were recorded and later broadcast over eastern Illinois and western Indiana. About 350 farmers registered for the course. About 100 of them finished the course and took the final examination; the same examination that the resident students took. It was a very satisfying experience.

Farms Are Growing Larger. In the beginning of the farm account project and on through 65 years I have been in a minority among my economic colleagues in being as much or more interested in the social as in the economic values of farming and farm life. It was in the early 1940's that I became mugh interested in a reported study of two nearby communities in the Central Valley of California. One community was made up of small family sized farms and the other of very large commercial farms. I wished that a similar study could be made in the Cornbelt but knew that no such communities existed. So I simulated county areas of different sized farms by sorting farm records according to size and putting enough of each size together to make a county area. I repeated the study from time to time and made a more thorough study after retirement. Fieldmen in the Farm Business Farm Management Service and the farmer Advisory Committee of the Department of Agricultural Economics asked that the material be published. This was done in Illinois Experiment Station Bulletin No.613,"Farm Are Grwoing Larger; Some Relationships to Individual Farm Planning ,County Development and National Policy". I was invited to go to Washington,D.C.,and present the material to the Annual Meeting of the National Planning Association. I wish that I could repeat that study,using records of the last five years.

Completion of Two Farm Management Bulletins. During much of 1951 and 1952 after retirement in 1950,I remained in the office completing Bulletin No.548, "Livestock Earnings on North Central Illinois Farms",published in 1951, and Bulletin No.558, "Why Some Farms Earn So Much More Than Others",of which V.I.West was co-author. Professor West,Department Statistician,was very helpful in analysing the data for this bulletin. Both bulletins were based on Farm Business Farm Management Service records.

Farmsteads of the United States at the Middle of the Twentieth Century. Sometime in 1948 when in conversation with M.L. Wilson,then the United States Director of Agricultural Extension,we discussed the great changes that were taking place in farming and farm life. Since some of the changes were visable in the architecture of farm residences,barns and storage buildings and the general appearance of the farmsteads,I suggested that,as a matter of historic interest he ask each of the County Agents in the 3,000 agricultural counties to include photographs of several typical farmsteads in his report for 1950. Mr. Wilson thought it was a good idea but he was a busy man and did nothing about it. However, Mrs.Mosher and I decided to do what we could about it. So,during the fifteen years of 1949 to 1963 as we drove to national meetings and visited relatives and friends and places of historic and scenic interest we stopped every 20 to 50 miles,depending on the denseness of farm population,and photographed what we considered a typical farmstead. We used two cameras. With one we got colored slides and with the other black and white films. (The colored-slide camera was an Argus which the Fieldmen of the Farm Business Farm Management Service gave me when I retired. I still have it.) We,ourselves,got about 1,500 colored slides and 1,500 black and white films in 47 states. Friendly agents got some in Navada and Alaska. On the suggestion of friends we had 5 by 7 enlargements of about 600 photographs made and prepared them in book form. The manuscript was submitted to several publishers but was rejected because of the cost of publication and the limited number that could be sold. Two copies of the book were made. One was donated to the Agricultural Hall of Fame at Bonner Springs,Kansas,and one to the Library of the United States Department of Agriculture in Washington,D.C.. A five by eight foot map was made (made in the Mayflower shop),one or more pictures put on each state and put up in the National Hall of Fame Museum. The 1,500 colored slides,the 1,500 black and white films and a narrated lecture,in which about 80 slides are shown, were donated to the Archives of the University of Illinois Library.

No other collection of photoes of farmsteads as they were at the middle of the twentieth century exists and, of couse,can ever be obtained. As I drive through the Cornbelt now I realize the historic value of the farmstead pictures. Great changes are already apparent in the architecture of residences,livestoch barns,storage buildings and in the landscaping and neatness of home sites.

This Open Pollinated Corn Book. Of similar historic value to the farmstead pictures are the five open pollinated corn books which are now being completed. They are being offered to a few libraries. No other collection of photographs of open pollinated corn such as was being grown in the Cornbelt during the years preceeding the general introduction of hybrid seed exists or can be duplicated.

WHAT OF THE FUTURE

Since my future may be ten minutes or ten years,to undertake any "have to" project would be foolish. However there are two things that I have dreamed of doing. The first is to write a sequal to the bulletin,"Farms Are Growing Larger" I have a dream of a rural life that would socially attractive to young,middle aged and old,that would make satisfactory economic use of land,labor,capital and management and that would make full use of natural resourses and also conserve them for future generations. That is a big order,but I would like to develope such a dream for my own satisfaction and whatever use it might be for those who will make the future.

The other thing that I should like to do is quite personal and of family interest. I should like to write a financial history of a midwest middle-class family. When I was 19 years old I told my father that I would like to go to the Agricultural College at Ames. He said,"I will not keep you on the farm to help me but I cannot help you financially". I had $7.50 in cash,my clothes and a pony and saddle which I sold for $75.00. I worked that summer of 1901 as a hired man for $30.00 per month and board and feed for my pony. I had taken a course in bookkeeping in High School and made use of it by keeping careful records through the four years of college. Intermittant records were kept for several years and complete records were kept from September 1,1923,until the present. I look forward with interest to writing this story of 73 years from when I was alone at 19 years of age until i am again alone at 92 years; alone, but with 5 children,17 grandchildren and 9 great,grandchildren in ten states and one foreign country; and memories of 63½ happy years with my wife.

COMPLETE ITEMIZED DESCRIPTIVE DATA

of the

120 SAMPLES OF SEED CORN

entered in the

WOODFORD COUNTY CORN YIELD TEST

Each and every descriptive item of data regarding each of the 120 samples of open pollinated seed corn included in the Woodford County Corn Yield Test and used in the analyses shown in this book is recorded on the following pages 228 to 249.

The data for the 120 samples are arranged according to the adjusted yield(bushels per acre)in decil groups of 12 samples each. Data for each of the three years of 1919,1920 and 1921 and their averages are shown.

The averages of each descriptive item for the 12 samples in each decil group are entered at the bottoms of the pages and are repeated on pages 248 and 249.

Eight descriptive items ,including yield,which require field or laboratory tests are recorded on the left handed even numbered pages and the twelve items observed by oldtime judges are on the right handed odd numbered pages.

The first of figures 1 to 10 on the fifth line for each sample indicates the decil group into which the sample was placed for each descriptive item. The second item with the plus or minus sign indicates the yield test score for the sample for each descriptive item. The sum of the scores indicates the score for the sample which is entered in the next to the right hand colume of the right hand page. An explanation of how the yield test score was developed is shown on page 204.

FIRST TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

* Size of kernel	Name of owner of sample	Rank in yield / Sample number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
465.4 444.1 417.6 443.2 7	Krug, George	1-62	1919	75.0	87.9	21.3	87.6	35.0	92.9	80.0	11.50	
			1920	71.8	95.4	18.6	84.8	36.0	88.6	75.0	12.75	
			1921	87.6	85.8	20.9	86.6	35.6	78.6	84.3	13.20	
			aver.	78.1	89.7	20.3	86.3	35.5	86.7	79.8	12.48	
			Group	1	6+1	2+3	2 +1	1+5	6 -1	3 +1	7 +1	+11
452.7 438.9 428.4 443.9 7	Scherty, Ed R.	2-101	1919	75.4	89.4	20.6	88.7	33.0	95.0	59.3	12.50	
			1920	65.4	96.3	19.0	86.1	34.0	96.5	82.9	12.80	
			1921	88.2	86.1	18.5	87.0	34.4	85.0	64.3	13.50	
			aver.	76.3	90.6	19.4	87.3	33.9	92.2	68.8	12.93	
			Group	1	3+3	1+3	1 +	8 -1	2 +3	9 -1	5 +1	+9
483.9 447.6 473.9 466.6 3	Shuck, William	3-57	1919	73.0	86.1	21.8	87.9	33.3	95.0	75.7	12.10	
			1920	68.3	97.1	18.8	86.1	34.5	91.4	63.6	12.90	
			1921	87.6	83.5	21.9	87.4	34.3	85.0	80.7	12.40	
			aver	76.3	88.9	20.8	87.1	34.0	90.5	73.3	12.47	
			Group	1	8 -1	4+1	1 +1	7 -1	3 + 3	7 -1	7 +1	+3
471.4 417.3 412.5 433.1 6	Lampe, Herman	4-75	1919	75.4	87.1	19.3	87.4	34.6	90.7	82.9	11.20	
			1920	67.6	94.7	17.8	83.8	35.5	87.1	75.7	11.60	
			1921	83.8	85.7	19.6	85.5	35.8	97.1	70.0	12.30	
			aver	75.6	89.2	18.9	85.6	35.3	91.6	76.2	11.70	
			Group	1	7 -1	1 +3	7 +1	1 +5	2 + 3	5 +1	10 -1	+11
454.1 429.5 451.6 445.2 7	Mc Cheaney, E. D.	5-30	1919	74.3	87.3	22.2	85.8	33.2	90.0	78.6	11.85	
			1920	67.5	97.8	18.4	85.6	34.9	89.3	65.7	12.30	
			1921	84.4	84.5	20.8	85.8	35.3	97.0	76.9	12.85	
			aver.	75.4	89.9	20.5	85.7	34.5	92.1	73.7	12.33	
			Group	1	5+3	3+3	6+1	3+1	2+3	7 -1	8 -1	+9
498.7 441.7 453.1 458.2 4	Kamm, C. H	6-109	1919	76.7	91.4	25.4	87.5	32.8	87.4	55.0	13.85	
			1920	64.8	94.9	18.7	85.2	32.8	85.0	59.3	14.80	
			1921	84.8	85.6	22.3	86.7	34.5	86.4	69.3	14.65	
			aver	75.4	90.6	22.1	86.5	33.4	86.4	61.2	14.43	
			Group	1	3+3	7 -1	1 +1	9 -3	6 -1	10 -1	1 -3	-5
439.2 416.9 399.8 417.9 9	Smith, J. D.	7-103	1919	74.0	91.2	22.8	87.3	33.3	89.3	65.0	12.65	
			1920	65.2	94.2	19.6	84.0	34.7	92.9	82.9	12.60	
			1921	86.7	85.1	20.8	86.1	34.7	92.9	97.9	11.70	
			aver.	75.3	90.2	21.1	85.5	34.2	91.7	81.9	12.32	
			Group	1	4+3	4+1	7 +1	6 -1	2+3	2 +1	8 -1	+7
475.1 477.6 446.5 466.9 3	Wadsworth, L. J.	8-70	1919	75.3	87.9	22.0	86.5	33.5	96.5	87.1	11.10	
			1920	67.4	97.3	17.6	85.0	34.7	92.9	70.7	12.90	
			1921	81.9	84.6	20.8	85.7	35.0	82.9	64.3	13.00	
			aver.	74.9	89.9	20.1	85.7	34.4	90.8	74.0	12.33	
			Group	1	5+3	2+3	6+1	3 +1	3 + 3	7 -1	7 +1	+11
442.7 419.8 439.2 444.2 7	Martin, Joe	9-100	1919	75.8	89.0	22.4	86.3	34.2	83.6	62.9	13.05	
			1920	62.6	92.5	19.9	84.7	35.9	97.9	74.3	13.90	
			1921	86.0	83.7	22.1	86.0	34.4	81.2	76.1	13.80	
			aver.	74.8	88.4	21.5	85.7	34.8	87.6	71.1	13.58	
			Group	1	9-3	6 -1	6+1	2 +1	5 -1	8 -1	2 -3	-5
485.1 435.8 478.8 466.5 3	Martin, John	10-112	1919	73.3	88.4	23.5	87.7	33.3	96.5	60.0	12.65	
			1920	69.8	95.0	20.2	86.2	33.7	92.1	63.6	13.00	
			1921	81.0	84.1	20.9	85.9	35.0	83.6	79.3	13.45	
			aver.	74.7	89.2	21.5	86.6	34.0	90.7	67.6	13.03	
			Group	1	8 -1	6 -1	1 +1	7 -1	3 +3	9 -1	4 -1	-1
471.6 436.7 438.0 448.9 5	Yordy Brothers	11-54	1919	74.6	90.0	23.7	87.6	34.4	84.3	70.7	13.45	
			1920	63.9	95.9	21.8	85.0	35.0	83.6	54.3	13.40	
			1921	84.9	84.9	21.4	85.3	36.1	73.6	87.1	13.35	
			aver.	74.5	90.3	22.3	86.0	35.2	80.5	70.7	13.57	
			Group	1	4+3	8 -1	4 +1	1+5	10 -1	8 -1	2 -3	+3
465.5 440.9 489.7 465.8 3	Scherty, Peter R.	12-97	1919	71.4	86.6	21.4	86.8	33.7	96.5	61.4	13.10	
			1920	64.9	96.7	18.4	85.2	34.5	89.3	72.7	13.15	
			1921	86.6	86.2	21.8	86.0	34.8	94.3	70.7	13.00	
			aver.	74.3	89.8	20.5	86.0	34.3	93.4	69.3	13.08	
			Group	1	5+3	3 +3	4+1	5 +1	1 +1	9 -1	4 -1	+7
450.2 5	average of 12 samples		aver.	75.5	89.7	20.8	86.2	34.7	89.5	72.3	12.85	
			Group	1	6+1	4+1	2+1	2+1	4+1	7 -1	5+1	+5

* Added after the books were otherwise completed. See pages 250 to 253.

FIRST TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items observed by oldtime corn judges												Judges' scoring	
nsity of ear	Kernel develop-ment	Inden-tation index	Length of kernel	Width of kernel	Thick-ness of kernel	Length of ear	Diame-ter of ear	Number rows of kernels	Color of shank	Condit-ion of shank	Varia tion index	Total acore	Placing by score
.3906	64.3	26.5	13.33	8.12	4.30	8.50	2.100	17.8	80.0	65.0			
.3994	54.3	34.0	13.88	7.94	4.03	9.00	2.125	17.0	60.0	65.0			
.4060	64.9	39.4	14.00	7.42	4.02	8.75	2.175	18.6	65.0	45.0			
.3991	62.2	35.0	13.74	7.83	4.12	8.75	2.133	17.8	68.3	58.3	7.0		
4+5	3+1	2+3	3+3	7-1	9+1	8+1	5+1	4+1	5+1	1+7	5+1	+24	1
.4124	72.9	60.6	13.94	7.73	4.21	8.75	2.100	18.6	70.0	60.0			
.4125	62.1	60.3	14.15	7.64	4.06	8.75	2.125	19.2	70.0	50.0			
.4037	77.1	61.4	13.48	7.67	4.24	9.00	2.175	19.0	60.0	40.0			
.4098	70.7	60.7	13.86	7.68	4.17	8.83	2.133	18.9	66.7	50.0	5.0		
1+3	1+3	9-1	2+3	8-1	7+1	7+1	5+1	7-1	5+1	2+3	1+1	+14	13
.4051	57.9	53.8	13.85	8.24	4.24	8.62	2.100	17.0	75.0	55.0			
.4041	50.0	53.7	13.71	8.35	3.91	9.00	2.125	16.8	65.0	60.0			
.3996	52.9	42.4	13.81	8.15	4.18	8.75	2.125	16.6	45.0	55.0			
.4030	53.6	50.0	13.82	8.25	4.11	8.79	2.117	16.8	61.7	56.7	8.0		
3+5	8+1	7-1	2+3	3+1	9+1	8+1	4+1	2+1	8-1	1+7	8-1	+18	7
.4052	65.0	49.2	12.67	7.91	4.36	8.37	2.050	17.0	65.0	50.0			
.4096	59.3	40.4	12.71	7.97	4.12	8.37	2.075	17.4	35.0	50.0			
.4080	67.9	26.5	12.57	7.85	4.18	8.50	2.125	17.2	55.0	55.0			
.4078	64.1	38.7	12.98	7.91	4.22	8.42	2.083	17.2	51.7	51.7	6.0		
1+3	2+3	3+3	9-1	6+1	5+1	10-3	2+1	2+1	10-1	1+7	2+1	+16	10
.4062	72.9	60.6	13.94	7.85	4.15	8.62	2.075	18.0	70.0	50.0			
.3986	53.6	48.5	13.23	7.73	4.20	9.12	2.075	18.2	75.0	50.0			
.3971	70.1	47.7	13.21	8.12	4.21	9.12	2.125	17.4	60.0	40.0			
.4003	65.5	52.2	13.45	7.90	4.19	8.96	2.092	17.9	68.3	46.7	9.0		
3+5	2+3	8-1	5+1	6+1	6+1	6+1	3+1	4+1	5+1	2+3	10-1	+16	10
.3817	65.0	67.4	14.39	7.79	4.27	9.12	2.250	19.8	55.0	60.0			
.4115	37.9	75.7	14.32	7.41	4.17	9.25	2.225	20.2	70.0	20.0			
.3949	52.1	78.8	14.30	7.58	4.18	9.15	2.275	20.4	65.0	30.0			
.3958	51.7	74.0	14.34	7.59	4.21	9.19	2.250	20.1	63.3	36.7	9.0		
5-1	9-3	10-7	1-5	9-3	5+1	2-1	10-3	10-5	7+1	7-1	10-1	-28	117
.4077	42.1	42.4	13.06	7.82	4.03	8.75	2.125	19.0	70.0	60.0			
.4061	49.3	31.6	13.23	7.82	4.30	8.75	2.125	18.6	60.0	45.0			
.4033	47.9	31.8	12.88	7.48	4.15	8.37	2.100	17.6	65.0	15.0			
.4061	46.4	35.2	13.06	7.71	4.15	8.69	2.117	18.4	65.0	40.0	8.0		
2+3	10-7	2+3	9-1	8-1	8+1	8+1	4+1	6+1	7+1	5+1	7-1	+2	49
.3998	60.0	46.2	13.36	8.27	4.30	8.25	2.075	17.4	75.0	55.0			
.4060	52.9	58.1	13.03	8.20	4.47	8.75	2.150	17.4	55.0	40.0			
.3999	57.9	44.7	13.12	7.97	4.27	8.75	2.175	17.2	70.0	45.0	6.0		
.4012	56.9	49.7	13.17	8.15	4.35	8.58	2.133	17.3	66.7	46.7			
3+5	5+1	7-1	8-1	3+1	1+1	9+1	5+1	3+1	6+1	3+1	2+1	+12	17
.3958	76.4	32.6	13.15	7.94	4.24	8.87	2.175	18.0	80.0	35.0			
.4007	65.0	40.4	13.85	8.00	4.06	9.12	2.200	18.8	60.0	40.0			
.3825	50.0	40.9	13.34	7.82	4.21	8.87	2.275	20.4	30.0	20.0			
.3925	63.8	38.0	13.45	7.92	4.17	8.96	2.217	19.1	56.7	31.7	6.0		
7-1	2+3	3+3	5+1	6+1	7+1	5+1	10-3	7-1	9-1	9-1	2+1	+4	37
.3891	58.6	43.2	13.94	8.15	4.27	8.75	2.175	18.6	65.0	60.0			
.3559	44.3	31.6	13.62	8.00	4.00	9.50	2.212	18.6	70.0	75.0			
.3976	54.3	37.9	13.27	8.51	4.24	9.00	2.178	17.4	80.0	45.0			
.3802	52.4	37.5	13.61	8.22	4.17	9.08	2.192	18.2	71.7	46.7	9.0		
0-5	8+1	3+3	4+1	3+1	7+1	4+1	9-3	5+1	4+1	2+3	10-1	+4	37
.4198	71.4	25.8	13.06	8.06	4.48	9.25	2.100	17.8	60.0	45.0			
.4126	57.1	38.2	13.35	7.94	4.12	9.50	2.125	18.8	75.0	50.0			
.4268	72.7	31.8	13.21	7.82	4.24	9.25	2.075	17.6	65.0	60.0			
.4199	66.4	32.0	13.21	7.94	4.28	9.33	2.100	18.1	66.7	51.7	7.0		
1+3	2+3	2+3	7+1	5+1	3+1	1-1	3+1	5+1	6+1	1+7	5	+22	2
.3901	54.3	53.8	13.48	8.03	4.30	9.25	2.150	16.8	70.0	20.0			
.4120	45.0	70.6	14.15	8.03	3.88	9.00	2.125	17.4	50.0	35.0			
.4073	65.7	52.3	13.67	8.57	4.18	9.00	2.125	16.0	60.0	30.0			
.4031	55.0	59.0	13.77	8.21	4.12	9.08	2.133	16.7	60.0	28.3	7.0		
3+5	6+1	9-1	3+3	3+1	9+1	4+1	5+1	2+1	8-1	10-1	5+1	+12	75
H016	59.1	46.8	13.60	7.44	4.19	8.89	2.142	18.1	63.9	45.4	7.2	+9.8	
3+5	4+1	6-1	4+1	5+1	6+1	6+1	3+1	4+1	7+1	3+1	7-1	+14.9	17

SECOND TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner o	Size of kernel *	Rank in Yield Sample number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent Moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Boyd, R.S.	479.3	13-63	1919	75.6	86.1	21.1	87.7	33.1	89.3	75.7	13.35	
	413.5		1920	62.0	94.2	19.1	85.0	35.5	72.1	75.0	13.40	
	397.7		1921	84.7	79.7	21.6	86.0	35.6	84.3	82.1	13.25	
	410.4		aver.	74.1	86.7	20.6	86.2	34.9	81.9	77.6	13.33	
	10		Group	2	10-7	3+3	3+1	2+1	9-1	4+1	3-3	-5
Shuman, George	475.3	14-64	1919	71.9	90.4	20.5	85.3	34.0	91.4	86.4	13.45	
	461.3		1920	64.7	96.6	19.0	84.7	36.1	95.0	70.7	14.40	
	493.6		1921	85.4	87.5	23.0	84.9	35.2	91.7	72.9	13.45	
	477.3		aver.	74.0	91.5	20.8	84.9	35.1	92.6	76.7	13.93	
	2		Group	2	1+1	4+1	10-5	1+5	1+1	4+1	1-3	+1
Riley, Harold	484.6	15-55	1919	74.2	88.9	25.4	87.8	34.5	87.1	67.1	13.10	
	483.8		1920	64.4	95.3	20.4	84.9	35.3	82.9	63.6	13.55	
	476.9		1921	83.3	85.8	21.6	86.0	35.8	84.3	95.0	13.15	
	481.8		aver.	74.0	90.0	22.5	86.2	35.2	84.8	75.2	13.27	
	2		Group	2	5+3	8-1	2+1	1+5	8-1	6-1	3-3	+3
Hinrichs, George	459.6	16-45	1919	73.2	90.9	19.8	86.2	33.3	97.1	88.6	12.45	
	489.7		1920	63.5	96.3	17.9	84.6	34.1	87.1	71.4	12.45	
	496.0		1921	84.6	80.0	18.6	84.8	34.2	87.1	95.7	12.70	
	482.3		aver.	73.8	89.1	18.8	85.2	33.4	90.4	85.2	12.53	
	2		Group	2	8-1	1+3	9-3	8-1	3+3	1+1	7+1	+3
Damman, Frank	470.7	17-27	1919	74.3	89.9	24.0	87.9	33.5	92.4	71.4	12.35	
	490.5		1920	63.9	95.8	19.2	85.1	34.9	78.6	61.4	13.40	
	459.9		1921	83.2	84.8	21.2	86.4	34.6	97.1	94.3	12.65	
	474.3		aver.	73.8	90.2	21.5	86.1	34.3	89.5	75.7	12.80	
	2		Group	2	4+3	6-1	3+1	5+1	4+1	5+1	5+1	+7
Unzicker, S.E.	522.7	18-46	1919	73.7	90.8	22.8	86.5	33.2	92.9	82.1	13.10	
	492.0		1920	62.8	97.4	20.7	85.0	34.4	90.0	92.1	13.75	
	506.6		1921	84.5	87.9	21.9	85.9	34.7	59.2	93.4	13.80	
	507.4		aver.	73.7	92.0	21.8	85.8	34.1	80.7	89.3	13.55	
	1		Group	2	1+1	7-1	6+1	6-1	10-1	1+1	2-3	-3
Berson, E.T.	420.5	19-67	1919	69.9	85.9	22.9	86.8	33.5	86.4	67.9	12.80	
	398.4		1920	63.3	96.9	20.4	83.9	34.4	85.7	75.7	13.00	
	403.2		1921	88.0	84.6	22.9	85.1	34.6	92.1	62.9	12.45	
	507.0		aver.	73.7	89.1	22.1	85.3	34.2	88.1	68.8	12.75	
	10		Group	2	8-1	7-1	8-1	5+1	4+1	9-1	5+1	-1
Scherty, S.E.	441.1	20-60	1919	69.6	89.7	20.1	86.7	33.8	93.6	74.3	12.05	
	441.0		1920	71.2	96.0	20.2	85.2	35.2	84.3	67.9	12.00	
	410.4		1921	79.9	83.7	20.8	86.7	34.6	70.0	87.1	12.50	
	8		aver.	73.6	89.8	20.4	86.2	34.5	82.6	76.4	12.18	
			Group	2	5+3	2+3	3+1	3+1	9-1	5+1	8-1	+7
Hock, Frank M	456.6	21-44	1919	74.0	90.5	22.3	87.2	34.0	88.6	76.4	12.45	
	456.4		1920	62.0	96.1	20.1	84.9	35.5	84.3	82.1	13.35	
	421.3		1921	84.7	83.5	22.0	86.5	33.3	80.7	96.5	12.30	
	6		aver.	73.6	90.0	21.5	86.2	34.3	84.5	85.0	12.70	
			Group	2	5+3	6-1	3+1	5+1	8-1	1+1	6+1	+5
Schofield, Gayle	423.0	22-65	1919	70.3	89.5	23.5	87.2	34.2	92.1	72.1	12.45	
	361.6		1920	66.0	97.0	18.6	84.8	35.1	92.1	76.4	11.80	
	395.6		1921	84.3	86.1	21.9	87.3	35.2	95.6	69.6	11.55	
	391.1		aver.	73.5	90.9	21.3	86.4	34.8	93.3	72.7	11.93	
	10		Group	2	2+1	5-1	2+1	2+1	1+1	7-1	9-1	+1
Martin, Emil	461.5	23-50	1919	70.9	88.4	24.2	87.3	35.5	82.9	75.0	11.95	
	419.8		1920	64.7	96.7	21.0	84.0	35.8	95.7	86.4	12.60	
	461.7		1921	84.3	90.5	22.2	85.6	34.7	80.7	92.1	14.15	
	450.3		aver.	73.3	91.9	22.5	85.6	35.3	86.4	84.5	12.90	
	5		Group	2	1+1	8-1	7+1	1+5	6-1	1+1	5+1	+7
Dyer, W. E.	421.	24-51	1919	71.5	87.8	21.9	86.8	32.5	87.9	77.9	13.80	
	433.		1920	64.2	95.8	21.1	84.4	35.6	81.4	87.9	12.40	
	435.		1921	83.9	84.8	21.4	86.1	35.1	70.0	82.1	13.75	
	429.3		aver.	73.2	89.5	21.5	85.8	34.4	79.8	82.6	13.32	
	3		Group	2	6+1	6-1	5+1	4+1	10-1	2+1	3-3	-1
Average of 12 samples	447.		aver.	73.7	90.1	21.3	85.9	34.6	86.3	79.1	12.93	
	5		Group		5+2	5-1	4+1	3+1	6-1	3+1	5+1	+4

* Added after the books were otherwise completed

SECOND TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items					Observed by oldtime corn judges							Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.3875	50.7	43.2	13.76	7.45	4.09	8.75	2,225	20.4	55.0	40.0			
.3797	60.0	52.9	14.00	7.44	3.97	8.87	2,250	20.2	75.0	40.0			
.3907	60.0	50.8	13.70	7.15	4.06	8.25	2,287	19.8	55.0	45.0			
.3875	56.9	49.0	13.82	7.35	4.04	8.62	2.254	20.1	61.7	41.7	7.0		
9-3	5+1	7-1	2+3	10-5	9+1	9+1	10-3	10-5	8-1	4+1	5+1	-10	95
.4214	67.9	40.2	13.51	8.24	4.27	9.00	2,125	17.8	75.0	40.0			
.4127	62.1	29.4	13.06	8.35	4.23	9.50	2.162	17.0	60.0	45.0			
.3952	71.4	32.6	13.18	8.36	4.48	9.50	2,175	17.2	70.0	60.0			
.4097	67.1	34.0	13.25	8.32	4.33	9.33	2.154	17.3	68.3	48.3	7.0		
1+3	1+3	2+3	7+1	2+1	1+1	1-1	7+1	2+1	5+1	2+3	5+1	+18	7
.4203	57.1	34.8	13.67	8.36	4.24	9.00	2,100	17.2	80.0	60.0			
.4180	69.3	50.0	13.56	8.06	4.12	9.25	2.112	18.0	70.0	60.0			
.4219	81.4	28.8	13.51	7.88	4.48	9.00	2.100	17.8	80.0	50.0			
.4203	69.3	38.0	13.58	8.10	4.28	9.08	2,104	17.7	76.7	56.7	4.0		
1+3	1+3	3+3	4+1	3+1	3+1	4+1	3+1	4+1	2-1	1+7	1+1	+22	2
.4091	62.1	41.7	12.97	8.24	4.30	9.00	2,075	17.0	85.0	50.0			
.3939	57.1	49.3	13.62	8.79	4.09	9.12	2,100	16.2	70.0	30.0			
.3833	69.1	41.7	13.70	8.42	4.30	9.12	2,150	16.2	65.0	35.0			
.3954	62.1	44.2	13.43	8.49	4.23	9.08	2.108	16.5	73.3	38.3	6.0		
5-1	3+1	5+1	5+1	1+1	5+1	4+1	3+1	1+1	3-1	6-1	2+1	+6	33
.4115	73.6	34.1	12.73	8.54	4.33	8.87	2.075	16.8	35.0	30.0			
.3962	55.7	43.4	13.71	8.58	4.17	9.00	2.187	17.0	60.0	45.0			
.3872	60.7	40.9	13.51	8.51	4.00	9.00	2.150	17.6	40.0	40.0			
.3983	63.3	39.5	13.33	8.57	4.17	8.96	2,137	17.1	45.0	38.3	7.0		
4+5	3+1	4+1	6+1	1+1	7+1	6+1	5+1	2+1	10-1	6-1	4+1	+12	17
.4261	69.1	59.1	14.27	8.64	4.24	8.87	2,100	16.4	75.0	30.0			
.4051	63.6	60.3	14.09	8.73	4.00	9.37	2,150	16.2	80.0	50.0			
.4110	70.8	52.3	13.94	8.57	4.24	9.25	2.150	16.6	60.8	45.0			
.4135	67.2	57.2	14.10	8.65	4.16	9.17	2.133	16.4	71.7	41.7	5.0		
1+3	1+3	9-1	2+3	1+1	8+1	2-1	5+1	1+1	4+1	5+1	1+1	+14	13
.4148	62.1	32.6	13.09	7.54	4.26	8.50	2,150	19.8	55.0	25.0			
.3835	58.6	25.0	12.74	7.50	4.17	9.12	2,175	19.4	75.0	30.0			
.3776	61.4	35.6	13.00	7.64	4.06	8.87	2.175	19.8	70.0	50.0			
.3915	60.7	31.0	12.94	7.56	4.16	8.83	2.167	19.7	66.7	35.0	7.0		
8-1	4+1	1-1	9-1	10-5	7+1	7+1	7+1	9-5	6+1	8-1	4+1	-8	89
.4122	57.9	43.2	13.03	7.97	4.18	8.75	2,062	17.0	70.7	40.0			
.4039	52.1	42.6	13.15	8.26	4.06	9.00	2.050	16.2	90.0	35.0			
.3917	59.6	38.6	13.27	7.91	3.91	9.00	2.125	18.2	30.0	35.0			
.4022	56.2	41.5	13.15	8.05	4.05	8.92	2.079	17.1	63.3	36.7	7.0		
3+5	6+1	5+1	8-1	4+1	9+1	6+1	2+1	2+1	7+1	7-1	4+1	+12	17
.4129	50.0	63.6	14.03	7.73	4.21	8.50	2.125	19.0	75.0	30.0			
.3976	52.9	64.7	14.00	7.97	4.09	9.25	2.150	18.4	55.0	35.0			
.3986	58.6	58.3	13.48	8.06	3.91	9.15	2.075	17.4	65.0	35.0			
.4028	53.8	62.2	13.84	7.92	4.04	8.96	2.117	18.3	65.0	33.3	6.0		
3+5	7+1	8-1	2+3	5+1	9+1	5+1	4+1	6+1	6+1	8-1	2+1	+14	13
.4208	67.1	40.9	13.42	8.00	3.84	8.75	2.075	19.4	65.0	45.0			
.3972	47.1	37.5	12.79	7.29	3.91	9.00	2.050	17.8	60.0	5.0			
.3951	61.6	40.9	13.70	7.33	3.94	8.75	2.062	17.0	55.0	50.0			
.4045	58.6	39.7	13.30	7.54	3.93	8.83	2.062	17.4	60.0	33.3	6.0		
2+3	5+1	4+1	6+1	10-5	7+1	1+1	3+1	9-1	9-1	2+1	-2	67	
.4158	67.9	25.0	12.79	8.00	4.51	8.50	2.075	16.6	75.0	45.0			
.3996	62.9	27.9	13.06	8.17	4.20	9.00	2.112	17.6	80.0	50.0			
.4044	64.3	33.3	13.51	8.03	4.21	9.00	2.225	18.4	45.0	35.0			
.4073	65.0	28.7	13.12	8.07	4.31	8.83	2.137	17.5	66.7	43.3	7.0		
2+3	2+3	1-1	8-1	4+1	2+1	6+1	6+1	3+1	6+1	4+1	4+1	+12	17
.4158	75.0	44.7	13.45	8.09	4.55	9.25	2.137	18.6	50.0	35.0			
.4117	61.4	51.5	13.15	7.88	4.17	9.12	2.050	17.6	55.0	45.0			
.3941	53.6	50.8	13.64	8.18	4.21	9.50	2.162	18.4	50.0	35.0			
.4073	63.3	49.0	13.41	8.05	4.31	9.29	2.117	18.2	51.7	38.3	8.0		
2+3	3+1	7-1	5+1	4+1	2+1	1-1	4+1	5+1	10-1	6-1	7-1	+4	37
.4034	62.0	42.9	13.74	8.05	4.17	8.99	2.131	17.8	64.2	40.4	6.4		
3+5	4+1	5+1	5+1	4+1	7+1	5+1	5+1	4+1	7+1	5+1	3+1	+16	19

THIRD TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner	Size of kernels	Rank in yield Sample Number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent Moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Cruvier, J. B.	393.4	25-76	1919	71.7	84.2	22.3	86.8	34.8	90.7	85.7	11.25	
	363.8		1920	64.3	96.0	17.4	84.8	35.7	81.4	75.7	11.45	
	349.0		1921	83.3	84.7	19.1	86.3	36.3	95.7	79.3	11.20	
	369.1		aver.	73.1	88.3	19.8	86.0	35.6	89.3	80.2	11.30	
	10		Group	3	10-7	1+3	4+1	1+5	4+1	3+	10-1	+3
Bigger, Judson	412.2	26-71	1919	70.4	90.3	21.7	86.7	34.3	95.0	92.9	10.35	
	411.0		1920	63.9	96.2	18.2	84.7	35.4	80.0	64.3	10.80	
	388.5		1921	84.9	86.3	20.5	85.6	33.6	83.6	66.4	11.30	
	401.1		aver.	73.1	90.9	20.1	85.7	34.4	86.2	74.5	10.82	
	10		Group	3	2+1	2+3	6+1	4+1	6-1	6+1	10-1	+5
Leman, Joseph	488.8	27-14	1919	72.2	87.5	23.6	87.0	34.1	82.1	89.3	13.25	
	455.0		1920	62.6	95.3	22.7	85.4	33.5	83.6	57.9	13.25	
	487.0		1921	84.5	84.2	21.4	85.3	34.4	90.0	85.7	12.45	
	477.3		aver.	73.1	89.0	22.6	85.4	34.0	85.2	77.6	12.98	
	2		Group	3	8-3	9-3	5+1	6-1	7-1	4+1	5+1	-4
Morris, E. D.	437.0	28-58	1919	71.4	87.8	20.7	87.8	33.5	92.1	81.4	12.20	
	450.1		1920	62.3	96.6	20.5	85.0	36.1	91.4	85.0	12.70	
	428.4		1921	85.4	87.0	20.0	86.4	35.2	80.0	77.9	12.60	
	438.8		aver.	73.0	90.5	20.4	86.4	34.9	87.8	81.4	12.50	
	6		Group	3	3+3	3+3	2+1	1+5	5+1	3+1	7+1	+15
Schertz, R. C.	455.5	29-52	1919	74.4	89.0	19.9	86.6	33.0	92.9	87.1	13.00	
	426.3		1920	64.0	95.3	20.1	84.2	34.9	89.3	75.7	13.40	
	435.2		1921	80.7	87.1	22.3	85.8	35.0	74.4	85.0	13.05	
	439.0		aver.	73.0	90.5	20.8	85.5	34.3	86.2	82.6	13.15	
	7		Group	3	3+3	4+1	7+1	5+1	6-1	2+1	3-3	+3
Greene, C. E.	458.6	30-59	1919	62.1	86.6	20.7	86.1	34.5	—	—	12.35	
	434.7		1920	66.4	96.0	18.7	84.5	34.3	—	—	13.65	
	-----		1921	(84.5)	—	—	—	—	—	—	—	
	446.1		aver.	73.0	91.3	19.7	85.3	34.4	—	—	13.00	
	6		Group	3	1+1	1+3	8-1	4+1			4-1	+3
Haas, Ralph	541.1	31-72	1919	73.0	88.8	22.1	86.0	33.8	85.0	81.4	12.80	
	515.5		1920	61.4	96.1	20.8	83.6	34.6	80.7	70.0	13.30	
	496.2		1921	84.2	83.9	20.0	84.6	34.1	85.7	72.1	12.25	
	517.8		aver.	72.9	89.6	21.0	84.7	34.2	83.8	74.5	12.78	
	1		Group	3	6+1	4+1	10-5	5+1	8-1	6+1	5+1	-1
Unzicker, Oscar	491.9	32-89	1919	71.0	89.8	24.5	87.2	34.0	82.1	62.9	12.60	
	471.9		1920	61.1	97.1	20.2	85.2	33.1	84.3	72.1	12.60	
	488.2-		1921	86.7	84.9	22.6	86.3	33.7	72.1	91.4	13.05	
	484.8		aver.	72.9	90.6	22.4	86.2	33.6	79.5	75.5	12.75	
	1		Group	3	3+3	8-1	2+1	9-3	10-1	6+1	5+1	+1
Nixon, H. R	512.5	33-84	1919	69.4	90.0	26.7	86.3	34.4	87.7	62.3	11.45	
	490.1		1920	64.3	98.0	19.9	84.1	34.6	84.3	62.9	12.85	
	451.1		1921	84.8	86.7	24.5	85.5	35.2	72.9	87.1	12.50	
	480.8		aver.	72.8	91.6	23.7	85.3	34.7	81.6	64.4	12.27	
	2		Group	3	1+1	10-5	8-1	2+1	9-1	9-1	8-1	-7
Davison Brothers	438.2	34-42	1919	73.8	89.4	18.6	86.3	34.0	82.1	65.0	12.65	
	398.1		1920	59.8	96.6	20.3	84.4	34.5	85.0	58.6	12.35	
	424.8		1921	84.6	87.9	20.8	85.5	35.3	73.7	91.5	12.70	
	420.8		aver.	72.7	91.3	19.9	85.4	34.6	80.3	71.7	12.57	
	9		Group	3	1+1	2+3	8-1	3+1	10-1	8-1	6+1	+3
Major, Joseph	457.3	35-16	1919	74.0	91.0	24.1	87.5	33.7	88.6	95.0	12.85	
	444.1		1920	61.8	96.1	20.4	84.4	34.0	92.0	77.1	12.90	
	442.8		1921	82.2	86.7	21.7	85.6	35.1	93.6	79.3	13.25	
	448.7		aver.	72.7	91.3	22.1	85.8	34.3	90.7	83.8	13.00	
	5		Group	3	1-1	7-1	5+1	4+1	3+3	1+1	4-1	+3
Neuhauser, E. H.	417.9	36-18	1919	72.2	90.8	23.3	87.6	33.9	85.7	96.4	11.80	
	421.4		1920	61.3	95.8	21.1	86.1	33.0	75.7	65.7	11.60	
	411.8		1921	84.7	84.8	24.4	86.4	35.3	90.8	83.1	11.90	
	427.5		aver.	72.7	90.5	22.9	86.7	34.1	84.1	81.7	11.77	
	9		Group	3	3+3	9-3	1+1	6-1	8-1	2+1	9-1	-1
average of 12 samples	446.6			72.9	90.5	21.3	35.8	34.5	85.0	77.4	12.41	
	6			3	3+3	5-1	5+1	3+1	7-1	4+1	7+1	+5

THIRD TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items observed by oldtime corn judges												Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.4009	58.6	25.0	13.18	7.09	4.21	8.50	2.050	19.0	75.0	35.0			
.4081	57.1	29.4	13.44	7.20	3.76	8.50	2.050	19.0	70.0	40.0			
.4161	64.3	25.0	12.94	7.06	3.82	8.37	2.100	19.2	65.0	35.0			
.3980	60.0	26.5	13.19	7.12	3.93	8.46	2.067	19.1	70.0	36.7	8.0		
4+5	4+1	1-1	7+1	10-5	10-5	10-3	1+1	8-3	5+1	7-1	7-1	-10	45
.4211	50.0	45.5	12.57	7.79	4.21	8.12	1.962	17.4	40.0	45.0			
.4167	43.6	50.7	13.09	7.85	4.00	8.25	2.000	18.0	45.0	45.0			
.3943	57.4	36.4	12.76	7.69	3.97	8.37	2.089	17.8	35.0	35.0			
.4105	52.0	44.2	12.81	7.97	4.06	8.25	2.017	17.7	40.0	41.7	9.0		
1+3	8+1	5+1	10-5	7-1	9+1	10-3	1+1	4+1	10-1	5+1	10-1	-2	67
.3962	57.1	37.9	13.36	8.45	4.33	9.00	2.175	17.8	70.0	45.0			
.3954	41.4	47.8	13.47	8.14	4.15	9.12	2.162	17.4	70.0	55.0			
.3854	61.4	31.1	13.33	8.21	4.45	9.00	2.137	17.6	55.0	20.0			
.3926	55.0	39.0	13.39	8.27	4.31	9.04	2.158	17.6	65.0	40.0	8.0		
7-1	6+1	3+3	6-1	2+1	2+1	4+1	7+1	3+1	7+1	5+1	7-1	+8	28
.4224	65.7	31.1	13.03	7.91	4.24	8.75	2.050	17.8	75.0	46.0			
.4011	62.1	36.0	12.88	8.09	4.32	9.25	2.087	17.2	75.0	35.0			
.3970	58.6	23.5	12.88	7.79	4.27	9.50	2.062	17.4	60.0	50.0			
.4066	62.1	30.2	12.93	7.93	4.28	9.16	2.067	17.5	70.0	43.3	6.0		
2+3	3+1	1-1	10-5	5+1	3+1	3-1	1+1	3+1	5+1	4+1	2+1	+4	37
.4024	65.0	40.2	13.30	7.91	4.33	8.50	2.200	19.6	60.0	15.0			
.3990	47.1	45.6	13.18	7.85	4.12	9.25	2.150	18.8	65.0	35.0			
.3994	59.3	39.4	13.33	7.70	4.24	9.00	2.157	19.4	45.0	20.0			
.3997	57.1	41.7	13.27	7.82	4.23	8.42	2.167	19.3	56.7	23.3	7.0		
3+5	5+1	5+1	7+1	7-1	4+1	6+1	7+1	8-3	9-1	10-1	4+1	+6	33
.4027	54.3	37.9	13.33	8.00	4.30	8.75	2.112	18.8	60.0	65.0			
.3971	50.0	44.9	13.44	7.85	4.12	9.25	2.175	18.6	55.0	40.0			
—	—	—	—	—	—	—	—	—	—	—			
.4005	52.2	41.4	13.38	7.92	4.21	9.00	2.143	18.7	57.5	52.5	6.0		
3+5	8+1	5+1	6+1	6+1	5+1	5+1	6+1	6+1	9-1	1+7	2+1	+20	9
.3983	62.9	44.7	13.94	9.09	4.27	8.75	2.162	16.2	85.0	50.0			
.4023	57.9	58.8	14.12	9.06	4.03	9.00	2.162	16.2	65.0	30.0			
.4042	72.9	49.2	13.18	8.88	4.24	8.75	2.100	15.8	90.0	65.0			
.4016	64.6	51.0	13.75	9.01	4.18	8.83	2.142	16.1	80.0	48.3	6.0		
3+5	2+3	8-1	3+3	1+1	7+1	7+1	6+1	1+1	1-1	2+3	2+1	+18	7
.3986	55.7	60.6	14.18	8.24	4.21	9.12	2.100	17.6	75.0	25.0			
.3933	46.4	55.1	13.50	8.38	4.17	9.25	2.100	17.0	90.0	10.0			
.3859	55.6	47.7	13.51	8.12	4.45	9.00	2.187	18.2	45.0	40.0			
.3927	52.4	54.5	13.73	8.25	4.28	9.12	2.129	17.6	70.0	25.0	7.0		
7-1	8+1	8-1	3+3	2+1	3+1	3-1	5+1	3+1	4+1	10-1	4+1	+6	33
.3862	62.3	22.7	12.97	8.88	4.45	8.87	2.062	16.0	70.0	45.0			
.3971	57.9	27.2	13.00	8.85	4.26	9.12	2.125	15.8	60.0	30.0			
.3996	65.0	34.8	13.06	8.70	3.97	9.25	2.075	15.6	60.0	30.0	7.0		
.3950	61.7	28.2	13.01	8.81	4.23	9.08	2.087	15.8	63.3	35.0			
6-1	4+1	1-1	9-1	1+1	4+1	4+1	2+1	1+1	7+1	8-1	4+1	+4	37
.4174	70.0	36.4	13.06	7.54	4.45	8.75	2.100	18.6	60.0	35.0			
.3855	54.3	47.8	12.88	7.67	4.03	9.25	2.100	18.4	65.0	55.0			
.3917	76.3	32.6	13.09	7.94	4.09	9.25	2.112	17.8	75.0	40.0			
.3982	66.9	34.0	13.01	7.72	4.19	9.08	2.104	18.3	66.7	43.3	6.0		
7+5	2+3	4+1	9-1	8-1	6+1	3-1	3+1	5+1	6+1	4+1	1+1	+12	17
.4082	71.4	33.3	13.09	7.85	4.45	8.87	2.125	18.6	80.0	50.0			
.4041	59.3	42.6	13.47	7.85	4.20	9.00	2.125	18.8	65.0	55.0			
.3842	61.4	27.3	12.88	7.94	4.33	9.50	2.150	17.6	80.0	50.0			
.3989	64.0	34.5	13.15	7.88	4.33	9.12	2.133	18.3	75.0	51.7	7.0		
4+5	2+3	2+3	8-1	6+1	1+1	3-1	5+1	5+1	3-1	1+7	4+1	+20	4
.4106	52.9	37.9	13.27	7.48	4.21	8.50	2.075	19.4	80.0	65.0			
.3940	45.0	47.8	13.47	7.88	3.97	8.50	2.100	18.0	75.0	45.0			
.3926	69.2	40.9	13.48	7.73	4.24	8.75	2.100	18.2	90.0	30.0			
.3991	55.7	42.2	13.41	7.70	4.14	8.58	2.092	18.5	65.0	46.7	8.0		
4+5	6+1	5+1	5+1	8-1	8+1	9+1	2+1	6+1	7+1	3+1	7-1	+12	17
.3994	58.7	39.4	13.25	8.02	4.20	8.89	2.140	17.9	64.9	406	7.1		
4+5	5+1	4+1	7+1	4+1	6+1	6+1	6+1	4+1	7+1	5+1	7-1	+14	13

FOURTEEN TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner of	* Size of kernels	Rank in yield Sample Number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Tallyn, ~~Ida~~ De Witt	471.7	37-47	1919	69.8	89.2	21.2	87.1	33.3	82.1	82.1	11.05	
	462.0		1920	64.9	96.8	17.9	85.5	34.4	96.5	77.9	11.45	
	457.3		1921	83.1	84.4	18.7	86.1	34.6	90.0	80.0	11.55	
	464.0		aver.	72.6	90.1	19.3	86.2	34.1	89.5	80.0	11.35	
	4		Group	4	5+3	1+3	3+1	6-1	4+1	3+1	10-1	+7
Livingston, J. N.	441.0	38-43	1919	73.8	89.3	19.1	86.2	33.9	92.1	76.4	13.05	
	428.0		1920	63.3	96.1	20.9	84.7	32.8	93.4	71.3	12.00	
	413.8		1921	80.4	87.6	20.1	85.6	33.7	93.5	74.0	12.25	
	429.6		aver.	72.6	91.0	20.0	85.5	33.5	93.0	75.6	12.10	
	6		Group	4	2+1	2+3	7+1	9-3	1+1	6+1	8-1	+3
Ofister, ~~Leo~~ Lester	516.5	39-73	1919	71.5	91.0	20.1	85.4	33.5	79.3	82.9	12.15	
	508.9		1920	63.1	96.6	19.4	84.3	33.9	82.9	86.4	13.70	
	492.2-		1921	83.2	84.2	20.8	85.7	34.1	87.1	53.6	11.75	
	501.4		aver.	72.6	90.6	20.1	85.1	33.8	83.1	74.3	12.53	
	1		Group	4	3+3	2+3	9-3	8-1	9-1	6+1	7+1	+3
Burroughs, C.R.	448.8	40-66	1919	68.9	87.0	21.9	86.4	33.7	95.7	75.0	12.95	
	470.4		1920	63.6	96.4	19.9	85.4	34.6	80.7	62.9	14.20	
	462.4		1921	85.2	85.6	21.4	85.5	34.1	93.6	74.3	13.65	
	462.2		aver.	72.6	89.7	21.1	85.5	34.1	90.0	70.7	13.60	
	4		Group	4	6+1	4+1	7+1	6-1	3+3	8-1	2-3	+1
Studer, Chris and Sons	453.5	41-110	1919	69.5	90.3	22.3	85.5	34.4	91.4	70.7	12.60	
	444.7		1920	63.5	95.4	19.6	84.7	34.8	85.0	70.7	12.55	
	457.2		1921	84.4	88.8	21.4	86.2	35.1	87.1	81.4	12.25	
	452.2		aver	72.5	91.5	21.1	85.5	34.8	87.3	74.3	12.47	
	5		Group	4	1+1	4+1	7+1	2+1	5+1	6+1	7+1	+7
Heiken, ~~Ben~~ Ben	457.5	42-111	1919	68.8	91.0	25.2	87.1	33.5	85.0	61.4	13.15	
	447.3		1920	66.6	95.2	19.2	84.5	34.8	72.1	56.4	13.45	
	438.5		1921	82.2	84.9	22.6	85.9	35.8	76.4	85.7	13.50	
	448.2		aver.	72.5	90.4	22.3	85.8	34.7	77.8	67.8	13.37	
	5		Group	4	4+3	8-1	5+1	3+1	10-1	9-1	2-3	-1
Tucker, W. H	472.7	43-31	1919	68.6	87.6	24.0	84.9	33.7	89.5	79.9	12.40	
	470.4		1920	61.2	95.5	22.1	85.4	33.9	95.0	64.3	14.20	
	471.3		1921	87.8	87.4	22.4	85.5	35.2	87.1	79.3	13.30	
	472.5		aver.	72.5	90.2	22.8	85.2	34.3	90.5	74.5	13.30	
	3 1		Group	4	4+3	9-3	9-3	5+1	3+3	6+1	3-3	-1
Hertz, C.F.	463.6	44-12	1919	69.3	90.0	27.8	87.3	33.7	79.9	82.9	13.10	
	459.2		1920	64.2	96.5	21.9	85.0	35.0	87.9	80.0	14.60	
	495.9		1921	85.0	84.9	21.0	86.1	34.8	93.6	85.0	14.05	
	472.9		aver	72.4	90.5	23.6	86.1	33.8	86.5	82.6	13.92	
	2		Group	4	3+3	10-5	3+1	8-1	6-1	2+1	1-3	-5
McNamara, Matt	418.4	45-32	1919	68.7	89.6	24.7	87.0	33.7	65.7	70.0	11.30	
	436.2		1920	62.7	95.8	18.8	86.0	34.0	93.6	65.7	11.80	
	430.6		1921	85.5	87.7	18.8	85.5	34.2	78.6	66.4	11.60	
	428.8		aver	72.3	91.0	20.8	86.2	34.0	79.3	67.4	11.57	
	8		Group	4	2+1	4+1	3+1	7-1	10-1	9-1	10-1	-1
Fagot, ~~Fran~~ Frank J	523.8	46-28	1919	70.8	85.0	22.7	86.3	34.3	80.0	71.4	13.35	
	480.1		1920	64.8	97.1	18.7	84.7	34.2	97.9	51.4	13.40	
	462.0		1921	81.3	86.2	21.9	85.4	33.3	98.6	74.3	13.10	
	488.5		aver.	72.3	89.4	21.1	85.6	34.1	92.2	65.7	13.28	
	1		Group	4	7-1	5-1	6+1	6-1	2+3	10-1	3-3	-3
Blanchard Charles	432.4	47-1	1919	69.5	89.8	23.1	85.7	33.9	90.0	87.8	12.50	
	456.0		1920	62.7	97.3	20.3	85.4	32.6	88.6	74.3	13.75	
	441.5		1921	84.8	85.0	21.6	85.4	35.3	72.1	78.6	11.95	
	444.0		aver.	72.3	90.7	21.7	85.4	33.9	83.6	80.2	12.73	
	7		Group	4	2+1	6-1	8-1	8-1	8-1	3+1	6+1	-1
Felter, P.A	470.3	48-6	1919	73.8	91.0	26.0	87.1	34.2	75.0	85.7	13.20	
	442.4		1920	62.7	96.1	20.7	84.7	32.6	61.4	62.1	13.00	
	475.3		1921	80.5	84.7	22.5	86.3	32.7	57.1	45.0	12.85	
	462.6		aver.	72.3	90.6	23.1	86.0	33.2	64.5	64.3	13.02	
	4		Group	4	3+3	9-3	4+1	10-5	10-1	10-1	4-1	-7
	460.9											
average of 12 samples	4			72.5	90.6	21.4	85.7	34.0	84.8	73.1	12.77	
				4	3+3	5-1	6+3	6-1	8-1	7-1	5+1	+3

* Added after the books were other wise completed

FOURTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items observed by oldtime corn judges												Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.4159	69.3	50.0	13.12	8.42	4.27	8.25	2.025	16.6	85.0	30.0			
.3965	31.4	59.6	13.38	8.32	4.15	8.75	2.050	16.2	80.0	60.0			
.3999	63.6	39.4	13.18	8.30	4.18	8.75	2.050	17.0	80.0	50.0			
.4039	54.8	49.7	13.23	8.35	4.20	8.58	2.042	16.6	81.7	46.7	6.0		
2+3	7+1	7-1	7+1	2+1	6+1	9+1	1+1	1+1	1-1	2+3	2+1	+12	17
.4072	52.9	53.0	13.36	7.73	42.7	8.75	2.075	18.0	50.0	25.0			
.3842	34.7	48.5	13.03	7.32	42.0	9.12	2.087	17.8	45.0	35.0			
.4042	58.0	51.5	12.82	7.76	42.1	8.75	2.100	19.6	70.0	70.0			
.3988	50.2	51.0	13.07	7.77	42.3	8.87	2.087	18.5	55.0	43.3	7.0		
4+5	9-3	8-1	9-1	7-1	4+1	6+1	2+1	6+1	10-1	4+1	4+1	+4	37
.3815	56.4	50.8	13.76	8.79	4.27	8.87	2.137	16.0	8.0	25.0			
.3744	55.7	68.4	13.91	8.73	4.15	9.50	2.200	16.6	95.0	20.0			
.3777	66.4	50.0	13.21	8.85	4.21	8.87	2.112	15.4	80.0	20.0			
.3800	59.5	56.5	13.63	8.79	4.21	9.08	2.150	16.0	85.0	21.7	7.0		
10-5	4+1	9+1	4+1	1+1	5+1	4+1	6+1	1+1	1-1	10-1	4+1	+2	49
.5983	60.0	26.5	13.15	7.67	4.45	8.75	2.175	18.8	80.0	25.0			
.3876	53.6	34.6	13.56	8.03	4.32	9.75	2.187	19.0	80.0	40.0			
.3787	47.9	38.6	13.18	7.94	4.45	9.37	2.212	18.8	75.0	30.0			
.3879	53.8	33.2	13.30	7.88	4.41	9.29	2.192	18.8	78.3	31.7	7.0		
8-1	7+1	2+3	6+1	6+1	1+1	2-1	9-3	7-1	2-1	9-1	4+1	±0	59
.3980	75.0	44.7	13.06	7.91	4.39	9.25	2.087	17.8	60.0	70.0			
.4067	66.4	30.1	12.82	8.03	4.32	9.12	2.095	17.4	85.0	35.0			
.3964	75.7	31.8	13.09	8.18	4.27	9.25	2.062	16.0	75.0	30.0			
.4063	72.4	35.5	12.99	8.04	4.33	9.21	2.075	17.1	73.3	28.3	7.0		
3+5	1+3	2+3	9-1	4+1	1+1	2-1	2+1	2+1	4+1	9-1	4+1	+14	13
.3909	73.6	47.7	13.85	7.79	4.24	8.75	2.212	20.4	80.0	50.0			
.3922	51.4	44.9	13.88	7.56	4.26	8.62	2.250	20.4	70.0	35.0			
.3808	68.6	42.4	13.54	7.48	4.33	8.62	2.287	18.2	90.0	50.0			
.3879	64.5	45.0	13.76	7.61	4.28	8.67	2.250	19.7	8.0	45.0	9+0		
8-1	2+3	6-1	3+3	9-3	3+1	9+1	10-3	9-5	1-1	3+1	10-1	-6	83
.3843	42.5	50.8	13.48	8.33	4.21	8.87	2.137	17.2	55.0	40.0			
.3844	47.9	65.4	14.26	7.91	4.17	9.50	2.225	18.8	75.0	55.0			
.3812	45.7	52.3	13.85	8.15	4.18	9.50	2.162	17.4	60.0	40.0			
.3853	45.4	56.2	13.87	8.13	4.19	9.29	2.175	17.8	63.3	45.0	8.0		
10-5	10-7	8-1	2+3	3+1	6+1	2-1	8-1	4+1	7+1	3+1	7-1	-8	89
.4262	64.3	35.6	13.34	7.94	4.36	8.87	2.100	18.8	50.0	55.0			
.3970	42.1	44.9	13.68	7.88	4.26	9.50	2.212	20.4	70.0	65.0			
.3936	60.0	32.6	13.94	8.09	4.42	9.50	2.187	19.0	60.0	40.0			
.4063	55.5	37.7	13.67	7.97	4.35	9.29	2.167	19.4	60.0	53.4	8.0		
2+3	6+1	3+3	3+3	5+1	1+1	1-1	7+1	9-5	9-1	1+7	7-1	+12	17
.4018	62.1	47.0	13.00	7.70	4.18	8.62	2.037	17.8	75.0	35.0			
.3865	41.4	53.7	13.23	7.85	4.20	9.25	2.050	17.8	65.0	45.0			
.3904	60.0	46.2	13.27	7.82	4.15	9.00	2.050	17.6	65.0	35.0			
.3929	54.5	49.0	13.17	7.79	4.18	8.96	2.096	17.7	68.3	38.3	8.0		
7-1	7+1	7-1	8-1	7-1	6+1	5+1	1+1	4+1	5+1	6-1	7-1	±0	59
.3877	63.6	39.4	13.88	8.48	4.45	9.37	2.162	16.8	60.0	20.0			
.3785	50.0	54.4	13.65	8.53	4.12	9.75	2.150	17.2	60.0	25.0			
.3962	47.1	40.2	13.18	8.21	4.27	9.00	2.162	17.0	75.0	40.0			
.3895	53.6	44.7	13.57	8.41	4.28	9.37	2.158	17.0	65.0	28.3	6.0		
9-3	7+1	5+1	4+1	2+1	3+1	1-1	7+1	2+1	6+1	9-1	1+1	+4	37
.4010	83.6	53.0	12.57	7.51	4.58	9.00	2.100	18.4	85.0	50.0			
.3976	60.0	40.4	13.47	7.94	4.26	9.75	2.125	18.2	70.0	40.0			
.3834	69.3	27.3	13.18	7.79	4.30	9.00	2.100	17.6	80.0	50.0			
.3933	71.0	40.2	13.08	7.75	4.38	9.25	2.111	18.1	78.3	46.7	8.0		
7-1	1+3	4+1	9-1	8-1	1+1	2-1	3+1	5+1	2-1	2+3	7-1	+4	37
.3984	75.0	32.6	13.27	8.30	4.27	9.125	2.150	17.6	65.0	60.0			
.3943	50.7	44.1	13.09	8.38	4.03	8.875	2.175	16.8	60.0	35.0			
.3704	35.0	40.9	13.70	8.36	4.15	9.125	2.200	17.8	60.0	45.0			
.3876	53.6	39.2	13.35	8.35	4.15	9.040	2.175	17.4	61.7	46.7	8.0		
9-3	8+1	4+1	6+1	2+1	8+1	4+1	8-1	3+1	8-1	3+1	7-1	+2	49
.3926	57.4	44.8	13.39	8.07	4.26	9.08	2.136	17.9	70.8	39.0	7.1		
7-1	5+1	6-1	6+1	3+1	3+1	3-1	5+1	4+1	4+1	5+1	7-1	+8	37

FIFTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner o	* Size of kernel	Rank in Yield Sample Number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Beer, ~~Willie~~ William	470.4 493.5 507.8 491.2 1	49-53	1919	70.6	90.3	24.7	86.4	34.4	97.9	85.0	12.80	
			1920	64.2	94.6	20.6	84.2	33.9	86.4	76.4	13.00	
			1921	81.7	83.5	21.3	85.3	34.9	67.9	88.6	13.80	
			aver.	72.2	89.5	22.2	85.3	34.4	84.1	83.3	13.20	
			Group	5	6 +3	8 -1	8 -1	3 +1	8 -1	2 +1	3 -3	-1
Armstrong W. H.	458.4 409.1 467.2 444.3 7	50-24	1919	64.7	84.5	26.0	86.9	33.5	80.7	75.7	14.20	
			1920	63.1	94.8	21.0	85.1	34.5	81.4	69.3	14.80	
			1921	86.1	82.1	23.7	86.3	34.9	95.7	86.4	14.00	
			aver.	72.2	87.1	23.6	86.1	34.3	85.9	77.1	14.33	
			Group	5	10 -7	10 -5	3 +1	4 +1	7 -1	4 +1	1 -3	-13
Schierer, ~~Ca~~ August	460.5 441.8 457.0 453.4 5	51-95	1919	70.9	83.9	18.8	87.5	33.6	94.3	77.1	11.60	
			1920	59.6	96.7	17.9	85.6	33.3	82.9	59.3	12.80	
			1921	85.7	85.6	20.0	86.3	35.2	67.9	83.6	13.35	
			aver.	72.1	88.7	18.9	85.6	34.0	81.7	73.3	12.52	
			Group	5	9 -3	1 +3	1 +1	7 -1	9 -1	7 -1	7 +1	
Darsh, ~~Luc~~ Mrs. Lucy	476.4 433.5 446.9 452.6 5	52-2	1919	69.9	88.4	24.1	87.1	32.7	89.3	92.9	13.15	
			1920	61.5	95.4	18.9	84.6	33.2	89.3	79.3	10.70	
			1921	85.0	87.8	20.7	85.9	35.0	81.9	69.3	12.00	
			aver.	72.1	90.5	21.2	85.4	33.6	86.7	80.5	11.95	
			Group	5	3 +3	5 -1	4 +1	9 -3	6 -1	3 +1	9 -1	-1
Schierer, ~~Ca~~ August	464.2 426.1 407.6 432.4 8	53-91	1919	73.0	84.9	22.3	85.4	34.1	94.3	78.6	12.40	
			1920	60.4	96.7	18.7	86.0	33.9	86.4	67.1	13.00	
			1921	82.6	84.2	20.2	85.6	33.2	92.9	77.1	12.20	
			aver.	72.0	88.6	20.4	85.7	33.7	91.2	74.3	12.53	
			Group	5	9 -3	2 +3	6 +1	9 -3	2 +3	7 -1	7 +1	+1
Nichols, ~~Th.~~ W. J.	475.8 449.8 468.5 462.2 4	54-81	1919	69.8	86.9	23.3	86.9	34.4	94.3	82.9	13.20	
			1920	61.1	97.4	19.8	84.1	35.2	89.3	74.3	12.85	
			1921	85.0	87.2	20.4	85.7	36.5	92.9	76.4	12.95	
			aver.	72.0	90.5	21.2	85.6	35.4	92.2	77.9	13.00	
			Group	5	3 +3	5 -1	6 +1	1 +5	2 +3	4 +1	4 -1	+11
Powell, ~~L.V~~ L. N.	437.3 414.2 446.4 432.6 8	55.20	1919	71.5	89.4	23.2	86.7	33.7	84.3	44.3	13.05	
			1920	61.9	95.2	21.4	84.7	33.1	90.0	77.1	12.55	
			1921	82.6	84.4	21.7	86.5	35.3	95.0	85.0	13.45	
			aver	72.0	89.7	22.1	85.9	34.0	89.8	85.5	13.02	
			Group	5	6 +1	7 -1	5 +1	7 -1	3 +3	1 +1	4 -1	+3
Voorhees, ~~Joh~~ John	467.3 389.1 440.8 431.4 8	56-13	1919	70.7	91.7	24.8	87.7	33.9	44.3	56.4	12.25	
			1920	63.3	95.6	20.0	85.1	33.8	85.3	70.6	12.85	
			1921	82.0	84.0	21.7	85.3	35.6	94.5	84.4	13.00	
			aver.	72.0	90.4	22.2	86.0	34.4	74.7	76.1	12.70	
			Group	5	4 +3	8 -1	4 +1	4 +1	10 -1	5 +1	6 +1	+5
Stoller, ~~Geor~~ George	551.8 535.5 541.0 543.8 1	57-9	1919	68.7	91.0	26.3	86.7	32.2	72.1	85.7	14.05	
			1920	63.6	95.2	21.5	84.8	32.7	79.3	56.4	14.45	
			1921	83.8	84.4	21.8	86.2	33.8	79.3	55.7	15.40	
			aver.	72.0	90.2	23.2	85.9	32.9	76.9	65.9	14.63	
			Group	5	4 +3	10 -5	5 +1	10 -5	10 -1	9 -1	1 -3	-11
Steider, ~~Pet~~ Peter	467.4 446.6 460.2 458.1 4	58-102	1919	69.4	88.6	21.1	87.2	33.8	90.0	60.0	11.40	
			1920	58.3	94.6	20.4	85.1	34.7	89.3	65.0	11.40	
			1921	87.8	84.8	20.4	86.3	34.5	95.0	71.4	11.65	
			aver.	71.8	89.3	20.6	86.2	34.3	91.4	65.5	11.48	
			Group	5	7 -1	3 +3	3 +1	5 +1	2 +3	10 -1	10 -1	+5
Seckler, ~~Joh~~ John A.	443.5 479.0 487.2 470.4 3	59-106	1919	68.9	87.4	24.6	88.3	33.2	95.0	72.9	13.95	
			1920	61.5	95.1	19.5	85.8	32.9	80.0	60.0	14.90	
			1921	85.1	82.3	22.1	87.0	33.0	81.4	76.0	14.75	
			aver.	71.8	88.3	22.1	87.0	33.0	85.5	67.6	14.53	
			Group	5	9 -3	7 -1	1 +1	10 -5	7 -1	9 -1	1 -3	-13
Armstrong, Frank	498.0 454.1 466.1 472.8 3	60-25	1919	70.9	84.9	23.9	87.6	32.0	88.6	83.6	14.25	
			1920	58.1	92.2	21.0	84.2	33.2	83.6	75.0	13.75	
			1921	86.2	80.3	23.1	86.2	33.6	90.7	58.6	15.60	
			aver.	71.7	85.8	22.7	86.0	32.9	87.6	72.4	14.53	
			Group	5	10 -7	9 -3	4 +1	10 -5	5 +1	8 -1	1 -3	-17
average of 12 samples	462.1 4			72.0 5	89.1 8 -1	21.7 6 -1	86.1 3 +1	33.9 8 -1	85.7 7 -1	75.0 6 +1	13.20 3 -3	-5

* Added after the books were otherwise completed

FIFTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items observed by oldtime corn judges												Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.3937	61.4	45.5	13.33	8.15	4.33	8.75	2.175	19.2	80.0	15.0			
.3827	52.1	54.4	13.88	8.23	4.32	9.25	2.162	17.6	80.0	45.0			
.3872	57.9	40.2	13.88	8.45	4.33	9.37	2.200	19.0	65.0	55.0			
.3881	57.1	46.7	13.70	8.28	4.33	9.12	2.179	18.6	75.0	35.3	7.0		
8-1	5+1	6-1	3-3	2+1	2+1	3-1	8-1	6+1	3-1	6-1	3+1	+2	49
.4039	75.7	43.9	14.00	8.51	4.36	9.25	2.200	20.6	45.0	55.0			
.4006	62.9	40.4	13.62	7.29	4.12	9.50	2.225	19.8	85.0	55.0			
.4108	64.3	31.1	13.82	7.70	4.39	9.25	2.162	19.8	70.0	20.0			
.4049	67.6	38.5	13.81	7.50	4.29	9.33	2.196	20.1	66.7	43.3	7.0		
2+3	1+3	3+3	2+3	10-5	2+1	1-1	9-3	10-5	6+1	7+1	3+1	+2	44
.3865	65.0	40.2	13.42	7.82	4.39	8.87	2.095	18.0	90.0	35.0			
.3966	42.9	55.1	13.76	7.85	4.09	8.75	2.150	19.2	75.0	65.0			
.3799	50.7	56.8	13.88	7.82	4.21	9.25	2.200	20.0	75.0	30.0			
.3881	52.9	50.7	13.69	7.83	4.23	8.96	2.142	19.1	80.0	43.3	7.0		
8-1	8+1	8-1	3+3	7-1	4+1	5+1	6+1	8-3	1-1	3+1	3+1	+2	49
.4081	75.0	50.8	13.69	8.00	4.33	8.87	2.150	18.6	95.0	65.0			
.3990	52.9	31.6	13.32	7.64	4.26	8.12	2.050	18.6	85.0	60.0			
.3850	56.4	29.5	13.51	7.97	4.15	9.00	2.100	19.9	80.0	35.0			
.3981	61.4	37.2	13.48	7.90	4.25	8.66	2.100	18.9	86.7	53.4	7.0		
4+5	4+1	2+3	5+1	6+1	4+1	9+1	3+1	7-1	1-1	1+7	3+1	+20	4
.3728	58.6	47.0	13.64	7.97	4.27	8.75	2.200	19.0	70.0	30.0			
.3953	32.1	47.1	13.73	7.70	4.03	8.75	2.187	19.4	60.0	30.0			
.3953	62.1	51.5	13.33	7.82	3.91	8.50	2.150	19.4	80.0	35.0			
.3876	50.9	48.5	13.57	7.83	4.07	8.67	2.079	19.3	70.0	31.7	7.0		
9-3	9-3	7-1	4+1	7-1	9+1	9+1	8-1	8-3	9+1	9-1	3+1	-8	89
.3993	72.9	44.7	13.12	8.15	4.45	9.00	2.162	17.6	75.0	40.0			
.4074	59.3	33.8	13.32	7.88	4.20	9.00	2.112	18.8	60.0	35.0			
.3873	69.3	42.4	13.42	8.12	4.30	9.00	2.150	18.0	55.0	35.0			
.3979	67.2	40.2	13.29	8.05	4.32	9.00	2.150	18.1	63.3	35.0	7.0		
4+5	1+3	4+1	7+1	4+1	2+1	5+1	6+1	5+1	7+1	8-1	3+1	+16	10
.4187	74.3	31.8	13.24	7.79	4.24	9.00	2.100	18.8	80.0	40.0			
.3959	52.9	37.5	13.12	7.61	4.15	9.37	2.095	18.0	90.0	55.0			
.4088	75.0	24.2	12.97	8.06	4.27	9.50	2.100	18.0	45.0	40.0			
.4078	67.4	31.2	13.11	7.82	4.22	9.29	2.092	18.3	91.7	45.0	6.0		
2+3	1+3	1-1	8-1	7-1	5+1	2-1	3+1	5+1	4+1	3+1	1+1	+8	28
.4090	62.1	42.4	14.06	7.73	4.30	8.25	2.150	18.6	75.0	45.0			
.3756	43.4	41.9	12.88	7.44	4.06	9.00	2.200	18.6	65.0	50.0			
.3800	55.4	43.2	13.39	7.82	4.21	9.00	2.200	19.8	80.0	45.0			
.3878	53.6	42.5	13.44	7.66	4.19	8.75	2.183	19.0	73.3	46.7	9.0		
9-3	8+1	5+1	5+1	9-3	6+1	8+1	8-1	7-1	3-1	2+3	9-1	-2	47
.3873	66.4	50.8	14.69	8.51	4.42	9.12	2.250	19.6	65.0	50.0			
.3938	45.7	57.4	14.06	8.94	4.26	9.12	2.262	17.8	65.0	35.0			
.3851	60.7	41.7	14.09	8.59	4.48	9.62	2.300	17.0	65.0	40.0			
.3828	57.6	50.0	14.27	8.68	4.39	9.29	2.291	17.5	65.0	41.7	6.0		
8-1	5+1	7-1	1-5	1+1	1+1	1-1	10-3	3+1	6+1	4+1	1+1	-4	34
.4004	70.7	47.0	13.98	8.54	4.06	8.62	2.050	16.0	90.0	50.0			
.3956	48.6	44.9	13.09	8.53	4.00	8.62	2.062	16.2	75.0	30.0			
.3946	56.0	45.5	13.18	8.73	4.00	8.62	2.081	16.4	80.0	55.0			
.3968	56.4	45.7	13.25	8.60	4.02	8.62	2.067	16.2	81.7	45.0	6.0		
5-1	5+1	6-1	7+1	1+1	10-5	9+1	1+1	1+1	1-1	3+1	1+1	±0	52
.4032	64.3	54.5	13.79	7.48	4.30	9.00	2.212	20.0	60.0	40.0			
.3825	43.6	80.1	15.03	7.85	4.06	9.37	2.300	20.2	60.0	40.0			
.3966	54.3	75.8	14.52	7.97	4.21	9.25	2.262	19.6	45.0	40.0			
.3940	54.1	70.2	14.45	7.77	4.19	9.21	2.258	19.9	55.0	40.0	6.0		
6-1	7+1	40-7	1-5	7-1	6+1	2-1	10-3	10-5	9-1	5+1	1+1	-20	109
.4027	65.7	72.7	14.45	7.85	4.39	9.00	2.237	19.8	90.0	35.0			
.3854	42.9	77.9	14.85	7.64	4.00	8.87	2.262	21.2	85.0	40.0			
.3698	48.6	72.7	14.70	7.64	4.15	9.62	2.362	20.6	65.0	40.0			
.3857	52.4	74.5	14.67	7.71	4.18	9.17	2.287	20.5	80.0	38.4	7.0		
9-3	8+1	10-7	1-5	8-1	6+1	2-1	10-3	10-5	1-1	5+1	3+1	-22	114
.3938	58.3	48.0	13.71	7.97	4.22	9.01	2.175	18.8	72.4	41.8	6.8		
6-1	5+1	6-1	3+3	5+1	5+1	5+1	8-1	7-1	4+1	4+1	3+1	6	33

SIXTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner o	* Size of kernels	Rank in Yield Sample Number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent Moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Armstrong, A. N.	464.8	61-26	1919	70.0	87.9	26.2	86.7	33.0	84.3	84.3	12.75	
	441.0		1920	60.2	91.9	21.3	83.8	34.2	88.2	77.9	12.75	
	431.9		1921	85.0	95.4	22.4	84.9	34.3	84.3	67.9	12.35	
	445.5		aver.	71.7	88.4	23.3	85.1	33.8	85.6	76.7	12.62	
	6		Group	6	9-3	10-5	9-3	8-1	7-1	4+1	6+1	-11
Switzer, R. H	526.9	62-28	1919	68.4	86.5	24.3	87.6	33.0	79.3	74.3	12.80	
	450.8		1920	61.4	96.5	21.2	85.3	33.7	82.1	83.6	13.55	
	461.1		1921	84.5	85.1	22.2	85.7	34.8	92.1	94.3	12.80	
	479.0		aver.	71.6	89.4	22.6	86.2	33.8	84.5	84.1	13.05	
	2		Group	6	7-1	9-3	2+1	8-1	8-1	1+1	4-1	-5
Knapp, Chas Charles	444.2	63-85	1919	70.1	89.7	23.4	86.6	32.8	87.9	57.1	12.60	
	407.6		1920	61.9	96.8	18.4	84.8	33.2	96.5	60.7	14.25	
	420.2		1921	82.6	84.2	19.5	85.4	32.6	93.6	57.1	13.20	
	424.0		aver.	71.5	90.2	20.4	85.6	32.9	92.7	58.3	13.35	
	9		Group	6	5+3	3+3	6+1	10-5	1+1	10-1	3-3	-1
Kamp Bros Brothers	432.5	64-82	1919	72.2	90.4	24.2	86.7	34.5	87.1	75.0	13.10	
	398.7		1920	57.6	97.0	21.1	84.4	33.8	87.9	64.3	12.50	
	463.2		1921	84.8	86.3	20.3	85.5	35.7	88.6	72.1	13.30	
	431.8		aver.	71.5	91.2	21.9	85.5	34.7	87.9	72.1	12.97	
	8		Group	6	2+1	7-1	8-1	3+1	4+1	8-1	5+1	+1
Sheppard, E P. L.	411.6	65-21	1919	72.2	88.7	20.1	87.6	34.5	84.3	95.7	12.85	
	413.8		1920	60.6	94.4	21.6	83.7	33.5	86.4	65.7	12.80	
	426.5		1921	81.5	84.9	22.8	85.6	34.2	94.3	86.4	12.00	
	417.1		aver.	71.4	89.3	21.5	85.6	34.1	88.3	82.6	12.55	
	9		Group	6	7-1	6-1	7+1	6-1	4+1	2+1	7+1	+1
Roth, J. H. & of Panola	436.4	66-56	1919	67.9	89.6	23.2	86.2	34.1	89.3	71.4	14.25	
	465.3		1920	63.0	94.9	21.1	84.9	34.1	76.4	55.0	13.10	
	435.4		1921	83.9	85.4	21.7	86.5	35.8	70.7	64.3	11.55	
	446.3		aver.	71.3	90.0	22.0	85.9	34.7	78.8	63.6	12.97	
	6		Group	6	5+3	7-1	5+1	2+1	10-1	10-1	5+1	+3
Kremer, Udo	429.5	67-36	1919	70.8	91.2	23.0	86.0	33.6	92.9	74.3	11.45	
	443.4		1920	61.2	96.4	17.8	84.9	34.3	90.0	80.7	12.05	
	440.9		1921	81.4	87.1	19.9	85.2	35.2	94.3	83.6	11.95	
	438.6		aver.	71.3	91.6	20.2	85.4	34.4	92.4	79.5	11.82	
	6		Group	6	1+1	2+3	8-1	4+1	2+3	3+1	9-1	+7
Sommer, Geo George J.	460.4	68-98	1919	69.3	87.1	23.6	86.3	33.8	97.9	82.1	12.20	
	474.8		1920	60.4	95.7	19.7	85.8	34.3	88.6	88.6	13.25	
	439.0		1921	84.2	88.5	21.3	85.7	35.3	82.6	65.9	12.70	
	458.3		aver.	71.3	90.4	21.5	85.4	34.5	89.7	78.9	12.72	
	4		Group	6	4+3	6-1	4+1	3+1	3+3	4+1	6+1	+9
Hahn, Elmer	501.0	69-43	1919	68.0	84.5	22.8	88.5	32.0	91.4	71.4	14.40	
	473.6		1920	63.3	97.1	22.2	86.6	33.3	85.0	72.1	13.65	
	519.7		1921	82.6	82.2	22.3	86.4	34.3	92.6	74.1	13.60	
	509.7		aver.	71.3	87.4	22.4	87.1	33.2	89.7	72.5	13.88	
	1		Group	6	10-7	8-1	1+1	10-5	4+1	8-1	1-3	-15
Ostler, J. W	446.8	70-69	1919	72.9	88.2	19.1	86.0	33.5	97.1	86.4	11.20	
	421.9		1920	63.0	95.8	18.4	84.9	34.8	85.7	70.0	11.95	
	455.4		1921	78.7	82.0	21.7	85.8	35.0	97.9	79.3	12.65	
	444.3		aver.	71.2	88.7	19.7	85.6	34.4	93.6	78.6	11.93	
	7		Group	6	9-3	1+3	6+1	4+1	1+1	4+1	9-1	+3
Foerter, Jos Joseph	446.4	71-44	1919	65.7	85.3	21.8	86.0	33.7	95.0	80.0	11.85	
	437.1		1920	62.6	97.1	19.6	84.0	35.3	83.3	68.8	12.65	
	409.3		1921	85.0	86.2	20.3	85.7	35.0	80.1	92.9	13.30	
	438.2		aver.	71.1	89.5	20.6	85.2	34.7	84.3	80.6	12.60	
	8		Group	6	7-1	3+3	9-3	3+1	6-1	3+1	6+1	+1
Stickel, Mrs Geo M.	412.9	72-107	1919	69.1	89.2	24.7	87.1	33.6	89.9	76.4	12.55	
	431.8		1920	61.6	96.7	18.2	85.0	34.5	84.3	78.6	11.90	
	466.7		1921	82.6	82.1	20.4	85.8	34.8	89.1	73.2	13.25	
	437.0		aver.	71.1	89.3	21.1	86.0	34.3	87.1	76.1	12.57	
	6		Group	6	7-1	5-1	4+1	5+1	5+1	5+1	6+1	+3
Average of 12 samples	446.9			71.4	89.7	21.4	85.8	34.1	87.9	75.3	12.75	
	6			6	6+1	5-1	5+1	6-1	4+1	6+1	5+1	+3

* Added after the books were otherwise completed

SIXTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items					observed by oldtime corn judges							Judges scoring	
Density of ear	Kernel development	Identation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.4109	48.6	45.5	13.67	8.12	4.18	8.75	2,125	18.2	75.0	55.0			
.3857	45.6	45.6	13.38	8.00	4.12	9.00	2,162	18.2	70.0	50.0			
.3869	61.4	34.8	13.15	8.03	4.09	9.00	2.125	17.6	75.0	50.0			
.3945	51.9	42.0	13,40	8.05	4.13	8.92	2.137	18.0	73.3	51.7	7.0		
6-1	9-3	5+1	6+1	4+1	8+1	6+1	6+1	4+1	4+1	1+7	7-1	+10	26
.4029	55.0	59.1	14.09	8.06	4.64	8.75	2.150	18.0	70.0	50.0			
.3961	57.9	65.4	14.26	7.73	4.09	9.00	2,200	19.2	65.0	45.0			
.3918	54.3	60.6	14.00	7.88	4.18	9.00	2,150	18.0	75.0	25.0			
.3967	55.7	61.7	14.12	7.89	4.30	8.92	2,167	18.4	70.0	40,0	7,0		
5-1	6+1	9-1	2+3	6+1	2+1	6+1	7+1	6+1	5+1	5+1	7-1	+8	35
.3875	61.4	73.5	14.52	7.98	4.09	8.00	2,275	20.4	80,0	60,0			
.3995	49.3	80,1	14.12	7.44	3.88	8.75	2,237	20.6	70,0	25.0			
.3910	52.1	76.5	14.15	7.48	3.97	8.12	2.300	21.6	65.0	35.0			
.3863	54.5	76.7	14.26	7.47	3.98	8.29	2,304	20.9	71.7	40,0	8.0		
9-3	7+1	10-7	1-5	10-5	10-5	10-3	10-3	10-5	4+1	5+1	9-1	-34	120
.3973	67.9	40.9	13.30	7.51	4.33	8.87	2.175	19.6	50.0	30.0			
.3971	60.7	48.5	13.15	7.50	4.06	8.87	2.125	19.0	65.0	15.0			
.3834	48.6	44.7	13.18	8.06	4.36	9.12	2.200	19.0	40.0	15.0			
.3924	59.1	44.7	13.21	7.69	4.25	8.96	2.167	19.2	51.7	20.0	8.0		
7-1	4+1	5-1	7+1	8-1	4+1	6+1	7+1	8-3	10-1	10-1	9-1	-4	74
.4240	62.1	44.7	13.29	7.64	4.06	8.75	2.100	19.4	65.0	45.0			
.3882	55.0	62.5	13.38	7.85	3.94	8.87	2.195	19.0	80.0	65.0			
.3687	64.3	47.7	13.33	7.88	4.06	9.62	2.075	17.8	75.0	45.0			
.3929	60.5	51.7	13.32	7.79	4.02	9.08	2.117	18.7	73.3	51.7	8.0		
7-1	4+1	8-1	6+1	7-1	10-5	4+1	4+1	7-1	3-1	1+7	9-1	±0	59
.4564	57.9	45.5	13,54	7.88	4.09	8.50	2.162	19.6	85.0	35.0			
.3917	49.3	55.9	13.76	8.06	4.20	9.00	2,175	18.6	90.0	30,0			
.4019	60.7	56.1	13,27	7.85	4.18	8.50	2.075	19.2	55.0	35.0			
.4170	56.0	52.5	13.53	7.93	4.16	8.67	2.137	19.1	76.7	33.3	7.0		
1+3	6+1	8-1	4+1	5+1	8+1	9+1	6+1	8-3	2-1	8-1	6-1	+2	52
.4043	42.9	46,2	13,39	7.73	4.15	8,37	2.075	17.4	75.0	45,0			
.3939	60,0	41.2	12.97	8.14	4.20	8.62	2.125	17.4	95,0	45.0			
.3964	56.4	26.5	13,18	8.06	4.15	8.50	2,125	17.6	60.0	50,0			
.3984	53.4	38.0	13,18	7.98	4.17	8.50	2.108	17.5	76.7	46.7	8,0		
4+5	8+1	3+3	8-1	4+1	7+1	10-3	3+1	3+1	2-1	2+3	9-1	+10	26
.4095	65.7	31.1	13,24	8.03	4.33	8,50	2,112	18,4	65.0	30,0			
.4102	56.4	47.9	14.18	8,03	4.17	9p.0	2,137	19,6	45.0	10,0			
.3997	47.1	41.7	13.51	7.61	4.27	87.5	2,150	19.2	70.0	35.0			
.4068	54.4	40.0	13.65	7.89	4.26	87.5	2.133	19,1	60.0	25.0	8.0		
2+3	6+1	4+1	4+1	6+1	3+1	8+1	5+1	8-3	9-1	10-1	9-1	+4	30
.3959	62.1	80.3	15.06	7.79	4.27	92.5	2,237	20,2	70,0	40.0			
.3935	36.4	83.1	14.94	7.61	4.20	91.2	2,200	18.8	55.0	35,0			
.3868	50.9	71.2	14.61	8.59	4.39	92.5	2,200	17.8	60.0	40,0			
.3922	49.8	78,2	14.87	7.99	4.29	92.1	2,212	18.9	61.7	38.3	7.0		
7-1	9-3	10-7	4-5	4+1	2+1	2-1	9-3	9-1	8-1	6-1	6-1	-22	111
.4215	60.0	43.9	13,33	7.85	4.27	8,25	2.025	17.6	85.0	15.0			
.4122	48.6	27.2	12.71	7.94	4.26	9.00	2.025	18.6	35.0	40,0			
.3864	57.9	44.7	13,00	8.09	4.33	9.12	2.137	18.0	60.0	25.0			
.4065	55.5	38.5	13,01	7.96	4.29	8.79	2.062	18.1	60.0	26.7	8.0		
2+3	6+1	3+3	9-1	5+1	2+1	8+1	1+1	5+1	9-1	10-1	9-1	+8	21
.4025	61.4	28.0	12.79	7.79	4.48	8.50	2,100	18.2	65.0	35.0			
.4058	60.1	20.6	12.94	7.82	4.32	9.00	2.100	19.2	70.0	50.0			
.3901	67.9	8.3	12.57	7.30	4.45	9.50	2.137	20.4	75.0	10.0			
.3996	63.1	19.0	12.77	7.64	4.42	9.00	2.112	19.3	70.0	31.7	8.0		
4+5	3+1	1-1	10-5	9-3	1+1	5+1	4+1	8-3	5+1	9-1	9-1	-4	72
.3753	64.3	40.9	12.76	7.97	4.06	9.00	2.175	18.8	85.0	30.0			
.3914	45.0	25.0	12.91	8.06	4.15	8.37	2.150	17.8	70.0	33.0			
.3787	62.3	33.3	13,27	7.85	4.48	9.00	2,225	19.6	60.0	15.0			
.3821	57.2	33.0	12.98	7.96	4.23	8.79	2,183	18.7	71.7	25.0	8.0		
10-5	5+1	2+3	9-1	5+1	4+1	7+1	8-1	7-1	4+1	10-1	9-1	-2	47
.3971	56.1	48.0	13,52	7.85	4.21	8.82	2,157	18.8	68.1	35.9	7.7		
5-1	6+1	6-1	4+1	6+1	5+1	7+1	7+1	7-1	5+1	7-1	7-1	+2	

SEVENTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner	* Size of kernel	Rank in yield Sample Number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Moschel and Laible	462.6 453.4 457.9 457.3 4	73-118	1919	64.1	90.4	18.8	87.5	32.0	91.4	80.7	10.10	
			1920	62.4	93.0	16.2	84.6	33.7	86.4	63.6	11.15	
			1921	86.3	82.7	21.1	84.8	34.0	76.4	84.3	11.55	
			aver.	70.9	88.7	18.7	86.3	33.2	84.7	76.2	10.93	
			Group	7	9-3	1+3	2+1	8-1	8-1	5+1	10-1	-1
Meisner, Henry Jr.	444.9 403.9 428.6 425.6 9	74-105	1919	67.8	90.3	20.8	87.3	33.4	84.3	65.7	12.20	
			1920	60.3	95.4	18.9	85.0	34.0	94.3	81.4	11.85	
			1921	84.2	83.3	20.4	86.5	35.2	92.9	82.1	11.90	
			aver.	70.8	89.8	20.0	86.3	34.2	90.5	76.4	11.98	
			Group	7	6+1	2+3	2+1	5+1	3+3	5+1	9-1	+9
Sutton, S. S. E.	464.8 428.3 466.2 452.7 5	75-23	1919	72.8	88.7	24.2	86.5	33.5	87.1	86.4	13.50	
			1920	61.5	94.5	20.5	84.0	32.6	78.6	71.4	12.35	
			1921	78.0	83.1	23.9	85.0	35.2	95.0	82.1	14.15	
			aver.	70.8	88.8	22.9	85.2	33.8	86.9	80.0	13.33	
			Group	7	9-3	9-3	9-3	8-1	6-1	3+1	3-3	-13
Louis Mathias	514.1 477.5 508.4 500.1 1	76-37	1919	67.4	89.5	24.0	87.1	33.1	70.0	62.1	13.10	
			1920	59.6	93.9	20.5	83.5	34.5	80.7	62.9	13.40	
			1921	85.3	84.3	23.0	86.1	34.3	91.9	69.4	13.95	
			aver.	70.8	89.2	23.2	85.6	34.0	80.9	64.8	13.48	
			Group	7	7-1	10-5	7+1	6-1	9-1	10-1	2-3	-11
Knapp, & August	464.3 448.9 456.7 456.7 5	77-79	1919	70.2	87.9	21.1	86.2	33.3	98.6	90.7	12.65	
			1920	60.2	94.7	19.3	83.8	35.3	85.7	77.1	13.70	
			1921	81.8	83.7	21.0	85.4	34.4	77.4	57.4	12.80	
			aver.	70.7	88.8	20.5	85.1	34.3	87.4	75.2	13.05	
			Group	7	9-3	3+3	9-3	4+1	5+1	6+1	4-1	-1
Erskine F. Frank	486.3 452.4 448.4 462.5 4	78-78	1919	66.8	89.2	24.6	87.6	33.8	90.7	73.6	12.50	
			1920	65.2	94.2	17.4	85.0	35.0	86.4	67.1	11.85	
			1921	79.7	85.9	20.8	85.6	34.4	77.9	65.0	11.65	
			aver.	70.6	89.8	20.9	86.1	34.4	85.0	68.6	12.00	
			Group	7	5+3	4+1	4+1	3+1	7-1	9-1	9-1	+3
Schertz, Ben	459.0 465.1 508.3 477.6 2	79-48	1919	68.4	87.0	20.9	86.6	33.2	95.7	62.9	13.45	
			1920	59.7	96.2	20.9	85.9	34.2	96.5	72.9	13.70	
			1921	83.7	83.6	21.5	86.3	33.7	74.3	90.7	14.50	
			aver.	70.6	88.9	21.1	86.3	33.7	88.8	75.5	13.82	
			Group	7	8-3	4+1	2+1	8-1	4+1	6+1	2-3	-3
Bucklear, J. C. Jr.	457.6 400.3 452.3 436.3 6	80-34	1919	66.1	88.2	23.8	86.0	33.5	90.0	85.2	11.75	
			1920	60.3	96.1	19.6	85.0	34.6	85.0	42.1	11.20	
			1921	85.5	87.8	20.1	86.1	34.0	94.3	92.1	13.10	
			aver.	70.6	90.7	21.2	85.7	34.0	89.8	83.1	12.02	
			Group	7	2+1	5-1	6+1	6-1	3+3	2+1	9-1	+3
Householter, P.	498.5 465.8 456.2 471.3 2	81-5	1919	68.4	89.2	24.5	86.0	31.8	91.4	96.4	12.50	
			1920	62.5	97.8	20.8	84.8	32.8	72.1	44.3	12.80	
			1921	80.8	85.1	23.2	85.6	34.2	91.5	88.2	13.05	
			aver.	70.6	90.7	22.8	85.5	32.9	85.0	76.3	12.78	
			Group	7	2+1	9-3	7+1	8-1	7-1	5+1	5+1	-1
Gresham, Cora	436.2 422.6 425.9 425.0 9	82-4	1919	71.9	88.5	25.1	87.7	33.0	83.6	95.7	12.75	
			1920	55.5	95.9	23.1	84.3	33.0	81.4	59.5	13.35	
			1921	84.3	82.0	20.5	86.2	34.3	96.5	82.1	14.00	
			aver.	70.6	88.8	22.9	86.1	33.4	87.2	79.1	13.37	
			Group	7	9-3	9-3	3+1	9-3	5+1	3+1	2-3	-9
Roth, J. N. of Eureka	431.4 434.2 419.1 428.6 8	83-3	1919	69.2	94.4	25.0	85.8	33.7	85.7	93.6	12.20	
			1920	62.0	97.1	23.7	85.5	34.0	96.7	73.6	11.85	
			1921	80.7	86.5	22.7	85.3	34.1	95.0	90.0	11.65	
			aver.	70.6	92.7	23.8	85.5	33.9	92.5	85.7	11.90	
			Group	7	1+1	10-5	7+1	8-1	1+1	1+1	9-1	-3
Schertz, A. H.	485.3 446.8 483.3 471.7 3	84-96	1919	65.2	85.9	22.1	87.4	33.0	92.1	90.0	13.10	
			1920	62.5	96.6	19.4	84.5	32.3	89.9	61.6	13.70	
			1921	83.8	86.5	22.7	85.9	34.6	76.4	65.7	13.40	
			aver.	70.5	89.7	21.4	85.9	33.3	85.4	65.8	13.40	
			Group	7	6+1	5-1	5+1	10-5	7-1	10-1	2-3	-9
average 12 samples	455.7 5			70.7 7	89.8 5+3	21.6 6-1	85.9 4+1	34.1 6-1	87.0 6-1	75.6 5+1	12.68 6+1	+3

* Added after the books were otherwise completed

SEVENTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items					observed by oldtime corn judges							Judges score	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.4099	60.7	61.4	13.51	8.39	4.09	8.25	1.950	16.8	70.0	35.0			
.3833	41.4	71.3	14.00	8.03	4.03	8.50	2.087	16.4	75.0	25.0			
.3766	47.9	78.0	14.15	7.97	4.06	8.75	2.112	17.0	70.0	40.0			
.3895	50.0	70.2	13.89	8.13	4.05	8.50	2.050	16.7	71.7	33.3	6.0		
8-1	9-3	10-7	2+3	3+1	9+1	10-3	1+1	2+1	4+1	8-1	3+1	-6	83
.3966	70.7	50.0	13.48	7.93	4.27	8.37	2.162	19.6	75.0	35.0			
.4037	52.1	47.1	13.59	7.32	4.06	8.37	2.112	19.6	90.0	30.0			
.3913	62.1	50.8	13.36	7.73	4.15	8.37	2.150	19.8	60.0	25.0			
.3978	61.6	49.2	13.48	7.59	4.14	8.37	2.142	19.7	75.0	30.0	6.0		
4+5	4+1	7-1	5+1	9-3	7+1	10-3	6+1	9-5	3-1	9-1	3+1	-4	74
.3428	50.7	33.3	13.12	8.18	4.33	9.25	2.175	19.2	75.0	40.0			
.3772	44.3	49.3	13.44	7.85	4.06	9.12	2.137	18.0	90.0	60.0			
.3874	55.7	55.3	13.70	7.97	4.27	9.50	2.212	19.0	60.0	30.0			
.3863	50.2	46.0	13.41	8.00	4.22	9.29	2.175	18.7	75.0	43.3	7.0		
9-3	9-3	6-1	6+1	4+1	5+1	1-1	8-1	6+1	3-1	4+1	6-1	-6	83
.3934	51.4	50.0	13.79	8.13	4.27	8.75	2.200	17.2	65.0	50.0			
.4004	52.1	47.8	13.47	8.44	4.20	9.00	2.175	18.4	60.0	45.0			
.3907	47.6	49.2	14.09	8.51	4.24	9.50	2.187	17.4	75.0	35.0			
.3952	50.4	49.0	13.78	8.56	4.24	9.08	2.187	17.7	66.7	43.3	7.0		
6-1	9-3	7-1	3+3	1+1	4+1	4+1	8-1	3+1	6+1	4+1	6-1	+2	49
.3783	52.9	55.3	13.79	7.94	4.24	9.00	2.175	19.4	70.0	40.0			
.3941	47.9	47.8	13.76	8.09	4.03	9.25	2.187	18.0	50.0	25.0			
.3882	61.4	47.7	13.51	8.03	4.21	8.87	2.175	19.2	45.0	25.0			
.3871	54.1	50.2	13.69	8.02	4.16	9.04	2.179	18.9	55.0	30.0	9.0		
9-3	7+1	8-1	3+3	4+1	8+1	5+1	8-1	7-1	10-1	9-1	10-1	-2	67
.4010	45.7	56.8	13.73	8.18	4.33	9.00	2.100	17.8	85.0	30.0			
.4005	55.0	52.3	13.44	8.17	4.12	8.75	2.075	17.0	60.0	45.0			
.3791	51.4	38.6	12.88	8.27	4.21	8.87	2.100	17.6	80.0	30.0			
.3936	50.7	49.7	13.35	8.21	4.22	8.87	2.092	17.5	75.0	35.0	8.0		
6-1	9-3	7-1	6+1	3+1	5+1	6+1	2+1	3+1	3-1	8-1	9-1	-2	69
.3897	45.7	54.1	13.85	7.67	4.33	8.89	2.225	19.8	75.0	45.0			
.4005	52.1	64.9	14.18	7.70	4.26	9.00	2.200	19.2	70.0	40.0			
.3875	50.7	65.9	14.45	8.18	4.30	9.62	2.225	18.8	40.0	20.0			
.3921	49.5	63.2	14.15	7.85	4.30	9.17	2.217	19.3	61.7	35.0	6.0		
7-1	10-7	9-1	1-5	6+1	2+1	3-1	9-3	9-5	8-1	7-1	3+1	-22	111
.4187	61.4	34.1	12.73	8.36	4.30	8.50	2.050	16.4	75.0	45.0			
.4052	50.7	34.6	12.56	7.85	4.06	8.37	2.050	18.8	55.0	30.0			
.3811	67.9	32.6	12.79	8.00	4.42	9.25	2.175	18.4	40.0	40.0			
.4015	60.0	33.7	12.69	8.07	4.26	8.71	2.092	17.9	56.7	38.3	7.0		
3+5	4+1	2+3	10-5	3+1	3+1	8+1	2+1	4+1	9-1	6-1	6-1	+6	32
.3826	57.9	36.4	13.30	8.48	4.42	9.00	2.150	17.0	90.0	65.0			
.3948	50.7	47.8	13.44	8.73	3.97	9.25	2.112	17.0	85.0	35.0			
.3985	58.5	40.2	13.39	8.27	4.12	9.12	2.137	17.0	60.0	50.0			
.3922	55.7	41.5	13.38	8.50	4.17	9.12	2.138	17.0	78.3	50.0	6.0		
7-1	6+1	5+1	6+1	1+1	7+1	3-1	5+1	2+1	2-1	2+3	3+1	+8	22
.4148	64.9	40.2	13.36	7.70	4.24	8.87	2.100	18.4	70.0	50.0			
.4154	45.7	53.7	13.47	7.56	4.15	8.75	2.162	20.2	65.0	50.0			
.3937	75.0	46.2	13.54	7.51	4.09	9.25	2.212	20.2	55.0	40.0			
.4080	62.9	46.7	13.46	7.59	4.16	8.96	2.158	19.6	63.3	46.7	9.0		
1+3	3+1	6-1	5+1	9-3	7+1	5+1	7+1	9-5	7+1	3+1	10-1	±0	51
.4009	62.9	51.5	12.88	7.79	4.30	9.00	2.095	18.4	70.0	55.0			
.4062	54.3	31.6	13.06	7.59	4.38	8.62	2.095	18.8	45.0	80.0			
.3854	52.1	36.4	13.15	7.85	4.06	8.62	2.112	17.6	85.0	45.0			
.3975	56.4	39.7	13.03	7.74	4.25	8.78	2.087	18.3	66.7	40.0	8.0		
5-1	5+1	4+1	9-1	8-1	4+1	8+1	2+1	5+1	6+1	5+1	9-1	+4	32
.3776	52.1	66.7	14.00	8.06	4.30	9.12	2.200	19.8	95.0	35.0			
.3744	43.5	66.2	13.47	7.82	4.09	9.00	2.275	19.4	75.0	20.0			
.3899	60.0	59.9	13.88	8.33	4.18	9.25	2.175	18.2	60.0	30.0			
.3806	51.9	64.2	13.95	8.09	4.19	9.12	2.217	19.1	76.7	28.3	7.0		
10-5	9-3	10-7	2+3	3+1	6+1	3-1	9-3	8-3	3-1	9-1	6-1	-20	109
.3935	54.4	50.3	13.52	7.94	4.20	8.92	2.148	18.4	68.5	27.8	7.2		
7-1	6+1	8-1	4+1	5+1	6+1	6+1	6+1	6+1	5+1	10-1	7-1	+4	37

EIGHTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner o:	* Size of kernel	Rank in yield Sample number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Smith, ~~F~~ Chas, W.	461.1 423.7 428.6 437.9 6	85-11	1919	68.3	90.4	25.7	87.1	34.2	81.4	92.1	12.75	
			1920	62.0	96.2	19.5	85.2	33.7	92.9	74.3	11.95	
			1921	80.8	86.7	20.1	86.8	34.0	93.6	84.3	12.20	
			aver.	70.4	91.1	21.8	86.4	34.0	86.0	85.2	12.30	
			Group	8	2+1	7-1	2+1	7-1	7-1	1+1	8-1	-1
Zelter, J. Frank	478.4 467.7 490.3 479.3 2	86-113	1919	70.5	89.4	27.8	86.9	32.5	94.3	73.6	13.85	
			1920	58.5	92.3	23.6	83.3	34.5	72.1	57.1	14.55	
			1921	82.1	83.7	23.4	85.2	33.4	82.9	81.4	14.80	
			aver.	70.4	88.5	24.9	85.1	33.5	83.1	70.7	14.40	
			Group	8	9-3	10-5	4-3	9-3	9-1	8-1	1-3	-19
Kauffman Brothers.	439.3 432.2 421.9 431.9 8	87-8	1919	65.4	91.7	24.3	86.4	31.9	82.7	90.7	14.00	
			1920	62.3	97.7	19.8	85.2	33.7	90.7	65.7	12.80	
			1921	80.3	81.9	21.9	85.8	35.6	84.3	86.4	13.45	
			aver.	70.3	90.4	22.0	85.8	33.7	85.9	80.9	13.42	
			Group	8	4+3	7-1	5+1	8-1	7-1	3+1	2-3	-1
Merrick, ~~F~~ J. W.	443.6 426.0 453.9 441.8 6	88-22	1919	73.7	89.2	23.3	87.4	33.5	90.7	98.6	11.50	
			1920	57.2	94.2	22.6	84.6	33.6	92.9	79.9	12.00	
			1921	79.9	85.8	20.7	85.3	35.5	83.6	67.1	13.25	
			aver.	70.3	89.7	22.2	85.8	34.2	89.1	81.2	12.25	
			Group	8	6+1	8-1	5+1	5+1	4+2	3+1	8-1	+3
Funk, ~~F.~~ L. W.	442.7 428.1 451.7 441.1 7	89-39	1919	69.8	89.1	20.7	86.0	34.0	93.6	92.1	11.20	
			1920	60.5	95.5	17.4	84.2	35.5	93.6	85.0	12.20	
			1921	80.4	86.9	19.0	84.9	34.4	75.0	93.6	13.05	
			aver.	70.2	90.5	19.0	85.0	34.6	87.4	90.2	12.35	
			Group	8	4+3	1+3	10-5	3+1	5+1	1+1	7+1	+5
Sullivan, ~~F~~ Oscar	486.5- 456.7 471.3 473.0 3	90-41	1919	65.3	86.8	22.1	87.0	32.6	87.9	85.7	12.85	
			1920	62.3	96.1	19.2	84.1	34.0	94.3	90.7	12.60	
			1921	83.0	89.4	20.7	85.7	34.7	72.9	75.0	12.60	
			aver.	70.2	89.1	20.7	85.6	33.8	85.0	83.8	12.68	
			Group	8	8-3	3+3	6+1	8-1	7-1	2+1	6+1	+1
Smith, ~~F~~ J.C.	434.8 404.4 438.9 426.1 9	91-94	1919	67.4	85.2	22.2	87.5	34.2	90.7	72.9	12.40	
			1920	63.6	97.5	21.1	85.3	33.8	82.9	67.1	11.30	
			1921	79.7	88.9	22.0	85.9	35.0	82.1	55.7	12.20	
			aver.	70.2	90.5	21.8	86.2	34.3	81.9	65.2	12.13	
			Group	8	3+3	6-1	2+1	4+1	9-1	10-1	8-1	+1
Streid, P.F	468.3 505.8 458.7 478.3 2	92-104	1919	68.9	89.3	23.8	87.7	33.3	74.3	62.1	12.40	
			1920	57.7	93.6	20.7	84.2	33.2	86.4	77.9	13.90	
			1921	84.0	85.2	21.8	86.1	34.1	91.4	58.6	12.60	
			aver.	70.2	89.4	22.1	86.0	33.5	84.0	66.2	13.10	
			Group	8	7-1	7-1	4+1	9-3	8-1	9-1	4+1	-7
Stimpert, Theo.	497.1 447.8 430.3 458.2 4	93-61	1919	68.4	89.3	21.7	85.8	33.8	92.1	79.3	11.00	
			1920	64.5	95.7	18.1	83.0	36.0	77.9	70.0	11.20	
			1921	77.3	87.0	21.0	84.6	35.0	74.3	77.1	11.10	
			aver.	70.1	90.7	20.3	84.5	34.9	81.4	75.5	11.10	
			Group	8	2+1	2+3	10-5	1+5	9-1	6+1	10-1	+3
Bechtel, ~~A~~ a J,	471.9 406.0 437.9 437.9 6	94-17	1919	68.2	82.1	26.2	87.7	33.9	73.6	59.3	13.50	
			1920	57.5	92.0	22.7	84.9	34.6	92.9	75.7	12.75	
			1921	84.6	85.4	20.6	84.9	35.1	90.7	86.4	13.05	
			aver.	70.1	89.8	23.2	85.8	34.5	85.7	83.8	13.10	
			Group	8	5+3	10-5	5+1	3+1	7-1	2+1	4-1	-1
Orth, ~~Vict~~ William	465.3 415.3 426.0 435.4 6	95-10	1919	69.1	91.9	23.2	87.3	33.6	87.9	97.1	12.70	
			1920	62.0	97.0	19.1	85.7	34.0	95.0	81.4	12.60	
			1921	78.7	86.9	19.6	86.8	34.5	96.5	82.9	12.25	
			aver	69.9	91.9	20.6	86.6	34.0	93.1	87.1	12.52	
			Group.	8	1+1	3+3	1+1	7-1	1+1	1+1	7+1	+7
Mayne, ~~R~~ Robert.	423.4 377.9 401.1 400.5 10	96-68	1919	69.1	85.3	20.7	85.8	33.8	79.3	57.9	12.55	
			1920	59.6	97.0	20.2	83.8	35.5	95.0	62.9	12.90	
			1921	81.0	85.3	23.2	85.4	35.0	87.1	63.6	12.85	
			aver.	69.9	89.2	21.4	85.0	34.8	87.1	61.5	12.77	
			Group	8	7-1	5-1	2-3	2+1	5+1	10-1	5+1	-3
average of 12 samples	445.1 6			70.2	90.1	21.7	85.9	34.2	85.8	77.6	12.68	
				8	5+3	6-1	6+3	5+1	7-1	4+1	6+1	-7

* Added after the books were otherwise completed

EIGHTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items observed by oldtime corn judges											Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.4013	71.4	37.9	13.42	7.88	4.36	8.75	2.150	20.0	95.0	55.0			
.4054	46.4	43.4	13.44	7.56	4.17	8.50	2.100	20.0	50.0	55.0			
.3745	55.7	40.9	13.51	7.70	4.12	8.87	2.162	19.6	50.0	30.0			
.3937	57.8	40.7	13.46	7.71	4.22	8.71	2.137	19.9	65.0	46.7	9.0		
6-1	5+1	4+1	5+1	8-1	5+1	8+1	6+1	10-5	7+1	3+1	10-1	±0	59
.3886	61.4	45.5	13.42	8.12	4.39	9.37	2,200	18.8	75.0	35.0			
.3881	58.6	59.6	13.62	8.06	4.26	9.75	2,212	18.4	60.0	35.0			
.3845	60.7	36.4	13.42	8.21	4.45	9.87	2,225	18.8	55.0	40.0			
.3875	60.3	47.2	13.49	8.13	4.37	9.67	2.212	18.7	63.3	36.7	7.0		
9-3	4+1	6-1	4+1	3+1	1+1	1-1	9-3	6+1	7+1	7-1	6-1	-4	74
.3859	70.0	56.1	13.73	7.39	4.33	9.12	2.250	20.4	80.0	50.0			
.3918	47.1	46.3	13.47	7.64	4.20	9.00	2,150	20.4	75.0	35.0			
.3869	62.1	40.9	13.79	7.48	4.09	9.25	2,187	20.6	80.0	30.0			
.3885	59.7	47.7	13.66	7.51	4.21	9.12	2,196	20.5	78.3	38.7	9.0		
8-1	4+1	6-1	3+3	10-5	5+1	3-1	9-3	10-5	2-1	5+1	10-1	-12	101
.3906	42.1	34.1	13.09	7.44	4.27	8.50	2,100	18.8	65.0	40.0			
.4004	46.4	40.4	12.97	7.82	4.20	8.75	2,087	18.4	65.0	35.0			
.3854	57.1	40.9	13.42	8.15	4.15	9.12	2,162	18.0	45.0	35.0			
.3959	48.5	38.5	13.16	7.97	4.21	8.79	2.117	18.4	58.3	36.7	8.0		
5-1	10-7	3+3	8-1	5+1	5+1	7+1	4+1	6+1	9-1	6-1	8-1	-4	74
.4133	63.6	37.1	12.82	8.03	4.30	8.62	2,000	18.4	65.0	40.0			
.3984	66.4	33.1	12.85	7.82	4.26	9.50	2.075	17.4	60.0	35.0			
.3190	73.6	28.8	12.91	7.97	4.39	9.37	2,162	18.8	55.0	35.0			
.3967	67.9	33.0	12.86	7.94	4.32	9.17	2.099	18.2	60.0	36.7	8.0		
5-1	1+3	2+3	10-5	5+1	2+1	3-1	2+1	5+1	9-1	6-1	8-1	±0	59
.3988	52.9	40.9	13.18	8.24	4.48	8.87	2,150	17.8	95.0	25.2			
.3865	47.9	51.5	13.47	8.17	4.15	8.87	2,162	17.0	70.0	50.0			
.3946	57.1	43.9	13.15	8.45	4.27	8.75	2.150	18.2	75.0	30.0			
.3943	52.6	45.5	13.27	8.29	4.30	8.83	2,154	17.7	80.0	35.0	7.0		
6-1	8+1	6-1	7+1	2+1	2+1	7+1	7+1	4+1	1-1	8-1	6-1	+3	49
.3858	67.9	2.95	13.15	7.48	4.42	90.0	2.175	19.8	80.0	40.0			
.3874	35.0	27.9	12.94	7.53	4.15	86.2	2.075	18.8	60.0	40.0			
.3897	62.9	35.6	13.27	7.97	4.15	8.62	2.150	18.6	45.0	20.0			
.3879	55.3	31.0	13.12	7.66	4.24	8.75	2.133	19.1	61.7	33.3	7.0		
8-1	6+1	1-1	8-1	9-3	4+1	8+1	5+1	8-3	8-1	8-1	6-1	-8	89
.3918	70.7	53.8	13.91	7.94	4.24	9.00	2.150	18.2	70.0	50.0			
.3991	42.1	61.8	14.85	8.11	4.20	9.37	2.175	18.0	65.0	45.0			
.4013	62.1	54.5	13.73	7.88	4.24	8.75	2.137	19.0	50.0	35.0			
.3977	58.3	56.7	14.17	7.98	4.23	9.04	2.154	18.4	61.7	43.3	7.0		
5-1	5+1	9-1	1-5	4+1	4+1	4+1	6+1	6+1	8-1	4+1	6-1	-2	69
.4040	62.9	39.4	12.82	9.21	4.21	8.25	2.050	15.4	85.0	30.0			
.3878	62.1	48.5	12.79	8.82	3.97	8.75	2.050	14.4	85.0	40.0			
.3843	69.3	43.2	12.88	8.48	3.94	8.75	2.050	15.0	70.0	45.0			
.3919	64.8	43.7	12.83	8.84	4.04	8.58	2.050	14.9	80.0	38.3	8.0		
7-1	2+3	5+1	10-5	1+1	10-5	9+1	1+1	1+1	1-1	6-1	8-1	-6	31
.4020	67.9	38.6	13.64	7.88	4.39	9.25	2.150	18.8	85.0	40.0			
.3813	52.1	42.6	13.44	7.44	4.06	9.00	2,175	18.6	85.0	25.0			
.3815	67.1	41.7	13.33	7.64	4.30	9.00	2,200	19.8	70.0	45.0			
.3883	62.4	41.0	13.47	7.65	4.25	9.08	2.175	19.1	80.0	36.7	8.0		
8-1	3+1	5+1	5+1	9-3	3+1	4+1	8-1	7-1	2-1	7-1	8-1	-4	74
.4018	72.9	32.6	13.36	7.88	4.42	9.12	2,100	18.8	80.0	35.0			
.4042	59.3	45.6	13.53	7.56	4.06	9.00	2,100	19.8	75.0	45.0			
.3891	58.6	42.4	13.57	7.79	4.08	8.87	2,125	19.6	70.0	30.0			
.3956	63.4	40.2	13.49	7.74	4.17	9.00	2,108	19.4	75.0	36.7	7.0		
5-1	3+1	4+1	4+1	8-1	7+1	5+1	3+1	9-5	3-1	6-1	6-1	-4	74
.4044	60.0	28.8	12.91	7.79	4.21	8.75	2.125	19.0	55.0	30.0			
.3957	52.1	27.2	12.82	7.26	4.06	8.87	2.162	21.4	80.0	35.0			
.3835	48.6	31.1	12.82	7.48	4.18	9.12	2.162	18.4	45.0	35.0			
.3944	53.6	29.0	12.85	7.51	4.15	8.92	2.150	19.6	60.0	33.3	8.0		
6-1	8+1	1-1	10-5	10-5	8+1	6+1	6+1	9-5	9-1	9-1	8-1	-16	105
.3927	58.7	41.2	13.32	7.91	4.23	8.97	2.139	18.7	68.6	37.7	7.8		
7-1	5+1	5+1	6+1	6+1	4+1	5+1	6+1	6+1	5+1	6-1	7-1	+6	29

NINTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner of	* Size of kernels	Rank in yield Sample number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Cowman, Harry	485.2	97-114	1919	69.2	89.8	25.2	86.5	32.7	95.7	71.4	11.30	
	446.8		1920	60.5	93.1	23.4	83.0	34.3	91.4	65.0	10.45	
	429.1		1921	81.6	83.9	20.7	85.3	35.4	94.3	83.6	12.40	
	435.8		aver.	69.8	88.9	23.1	84.9	34.1	93.8	73.3	11.55	
	5		Group	9	8-3	9-3	10-5	6-1	1+1	7-1	10-1	-13
Barth, ~~John~~ Henry	441.4	98-38	1919	63.4	89.1	23.9	86.9	32.9	95.0	72.1	12.80	
	442.2		1920	57.2	96.3	19.2	85.1	33.5	87.1	68.6	13.60	
	460.8		1921	88.4	85.2	19.1	86.4	34.4	92.9	89.3	12.30	
	447.5		aver.	69.7	90.2	20.7	86.3	33.6	85.0	76.7	12.70	
	5		Group	9	4+3	3+3	2+1	9-3	8-1	5+5	6+1	+9
Lemons, J. S.	497.2	99-83	1919	69.3	88.0	23.3	86.0	34.5	95.7	52.9	12.55	
	438.7		1920	58.2	97.1	19.8	83.9	33.8	87.9	65.7	12.15	
	447.1		1921	81.3	87.1	21.1	84.1	36.2	90.0	71.4	11.80	
	460.9		aver.	69.6	90.7	21.4	84.7	34.8	84.5	63.3	12.17	
	4		Group	9	2+1	5-1	10-5	2+1	8-1	10-1	8-1	-7
Reeser, ~~B.~~ S. L.	466.1	100-80	1919	68.8	88.5	20.8	85.6	33.5	90.0	88.6	12.80	
	487.9		1920	57.3	95.1	20.1	83.7	35.5	90.0	70.7	12.80	
	448.0		1921	82.3	85.4	21.0	85.8	35.5	83.6	55.0	12.35	
	466.5		aver.	69.5	89.7	26.6	85.0	34.8	87.9	71.4	12.65	
	3		Group	9	6+1	3+3	9-3	2+1	4+1	8-1	6+1	+3
Ackerman, R. L.	385.1	101-77	1919	72.5	86.2	24.6	88.0	33.2	95.0	89.3	11.70	
	368.0		1920	56.1	94.2	21.0	84.3	33.5	95.0	88.6	11.55	
	376.3		1921	79.7	81.9	23.2	85.3	34.4	87.1	77.1	12.10	
	375.8		aver.	69.4	87.4	22.9	85.9	33.7	92.4	85.0	11.78	
	10		Group	9	10-7	9-3	5+1	9-3	2+3	1+1	9-1	-9
Crawford, Y. S.	379.5	102-115	1919	66.2	89.1	20.0	85.8	34.2	97.9	77.1	10.75	
	411.4		1920	66.1	93.4	18.8	84.4	35.7	90.7	76.4	11.90	
	384.8		1921	75.5	87.5	20.1	84.7	35.3	90.0	81.4	12.40	
	392.6		aver.	69.3	90.0	19.6	84.9	35.1	92.9	78.3	11.68	
	10		Group	9	5+3	1+3	10-5	1+5	1+1	4+1	10-1	+7
Dickinson & Co.	418.8	103-116	1919	67.0	89.4	22.8	88.7	32.8	92.9	65.0	13.20	
	420.6		1920	61.6	92.2	20.4	86.2	34.5	85.0	60.0	11.60	
	421.5		1921	69.2	84.9	19.6	86.2	35.3	72.1	87.1	11.85	
	428.5		aver.	69.2	88.8	20.9	87.0	34.2	83.3	70.7	12.22	
	9		Group	9	8-3	4+3	1+1	5+1	9-1	8-1	8-1	-1
Reeser, ~~B.~~ B. E.	410.1	104-7	1919	70.8	90.6	23.2	85.3	32.6	83.6	95.7	11.05	
	458.2		1920	61.2	97.0	17.7	84.7	33.5	83.6	67.1	12.10	
	421.1		1921	75.5	85.1	22.7	84.8	34.6	82.9	67.9	12.40	
	430.3		aver.	69.2	90.9	21.2	84.9	33.6	83.4	76.9	11.85	
	8		Group	9	2+1	5-1	10-5	9-3	8-1	4+1	9-1	-9
Schneider, George	528.5	105-87	1919	69.8	88.0	23.8	87.5	33.5	91.4	72.1	12.45	
	508.0		1920	58.6	96.6	19.6	84.8	34.2	82.1	60.7	12.70	
	483.5		1921	79.3	82.0	21.3	86.2	35.1	97.5	60.0	11.80	
	507.1		aver.	69.2	88.9	21.6	86.1	34.3	90.3	64.3	12.32	
	1		Group	9	8-3	6-1	3+1	7+1	3+3	10-1	8-1	-1
Yordy, ~~Jos~~ Joseph	455.0	106-24	1919	67.4	85.3	24.0	86.3	33.4	95.0	89.3	12.60	
	431.8		1920	59.3	94.2	22.6	84.0	34.2	85.0	63.6	13.80	
	436.0		1921	80.8	85.5	23.0	85.3	36.0	92.9	78.6	13.35	
	440.8		aver	69.2	88.3	23.2	85.2	34.7	91.0	77.2	13.25	
	7		Group	9	10-7	9-3	9-3	2+1	2+3	4+1	3-3	-11
Smith, ~~E~~ C. H.	528.4	107-19	1919	70.8	89.4	24.5	85.7	33.4	82.1	96.4	13,00	
	449.4		1920	55.6	93.1	23.7	83.7	35.0	82.6	80.4	12.45	
	469.6		1921	81.2	80.2	26.0	85.2	34.8	95.1	72.1	12.55	
	481.7		aver.	69.2	87.6	24.7	84.9	34.4	86.6	83.0	12.67	
	2		Group	9	10-7	10-5	10-5	4+1	6-1	2+1	6+1	-15
Newhauser John	-----	108-119	1919	(67.2)	—	—	—	—	—	—	—	
	418.5		1920	61.6	94.2	17.7	85.3	34.0	—	—	10.50	
	397.1		1921	77.6	83.7	18.1	85.4	36.0	—	—	10.20	
	407.4		aver.	68.8	88.9	17.9	85.4	35.0	—	—	10.35	
	10		Group	9	8-3	1+3	8-1	1+5	—	—	10-1	+3
average of the 12 samples.	411.1			69.4	89.2	21.5	85.4	34.4	88.3 (11)	74.5 (11)	12,20	
	6			9	7-1	6-1	8-1	3+1	4+1	6+1	8-1	-1

* Added after the books were otherwise completed

NINTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Descriptive items observed by oldtime corn judges												Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of chank	Condition of shank	Variation index	Total score	Placing by score
.3913	54.3	40.9	12.88	8.64	4.36	8.75	2.050	17.0	70.0	45.0			
.3541	17.9	40.4	12.56	8.47	4.20	9.12	2.062	17.0	65.0	35.0			
.3923	56.4	22.8	12.76	7.82	4.30	9.12	2.100	17.2	60.0	30.0			
.3809	42.9	36.7	12.73	8.31	4.29	9.00	2.071	17.1	65.0	36.7	8.0		
10-5	10-7	2+3	10-5	2+1	3+1	5+1	1+1	2+1	7+1	7-1	8+4	-10	9.5
.3937	47.1	62.1	13.70	7.82	4.12	8.75	2.175	18.8	80.0	30.0			
.4024	28.6	75.0	13.88	7.79	4.09	8.50	2.200	18.4	80.0	25.0			
.3872	39.3	62.9	14.03	8.03	4.09	8.75	2.150	17.8	55.0	20.0			
.3948	38.3	66.7	13.87	7.87	4.10	8.67	2.175	18.3	71.7	25.0	8.0		
E-1	10-7	10-7	2+3	6+1	9+1	9+1	8-1	6+1	4+1	10-1	8-1	-10	9.5
.3964	67.9	35.6	12.94	8.39	4.58	9.25	2.087	16.6	75.0	45.0			
.3932	50.7	39.0	12.91	8.09	4.20	9.25	2.062	16.2	70.0	25.0			
.3625	69.3	18.9	12.36	8.24	4.39	9.62	2.095	16.4	85.0	35.0			
.3840	62.6	31.2	12.74	8.24	4.39	9.37	2.075	16.4	76.7	35.0	7.0		
10-5	3+1	1-1	10-5	3+1	1+1	1-1	2+1	1+1	3-1	8-1	6-1	-10	9.5
.3820	54.3	47.7	13.34	8.42	4.15	9.12	2.162	15.8	85.0	35.0			
.3768	46.4	47.1	13.65	8.67	4.12	9.25	2.162	16.8	70.0	25.0			
.3685	45.0	46.2	12.82	8.36	4.18	9.12	2.162	16.6	80.0	50.0			
.3758	48.6	47.0	13.24	8.49	4.15	9.17	2.162	16.4	78.3	36.7	9.0		
10-5	10-7	6-1	7+1	1+1	8+1	3-1	7+1	1+1	2-1	7-1	10-1	-12	10
.4143	46.4	53.8	13.18	7.36	3.97	8.25	2.087	20.2	50.0	50.0			
.3878	42.9	63.2	13.23	7.17	3.85	8.50	2.112	21.6	70.0	45.0			
.3921	47.1	56.8	12.94	7.27	4.00	8.50	2.150	20.8	85.0	55.0			
.3974	45.5	58.2	13.12	7.27	3.44	8.42	2.117	20.9	68.3	50.0	6.0		
5-1	10-7	9-1	8-1	10-5	10-5	10-3	4+1	10-5	5+1	2+3	3+1	-22	11
.4022	89.9	18.2	12.21	7.33	4.24	8.00	2.062	17.8	95.0	45.0			
.3938	72.1	14.0	12.62	8.09	4.03	8.62	2.112	18.2	90.0	45.0			
.3861	75.7	17.4	12.57	7.54	4.06	8.75	2.162	19.0	75.0	40.0			
.3941	78.6	16.5	12.47	7.66	4.11	8.46	2.112	18.3	86.7	43.3	8.0		
6-1	1+3	1-1	10-5	9-3	9+1	10-3	4+1	5+1	1-1	4+1	8-1	-8	8
.3912	69.3	40.2	13.48	7.64	4.30	8.87	2.200	19.4	65.0	25.0			
.3620	58.6	49.3	12.76	8.00	4.12	9.25	2.100	18.2	95.0	45.0			
.3821	63.6	25.0	13.18	7.82	4.09	8.25	2.187	18.8	60.0	45.0			
.3787	63.8	38.2	13.14	7.82	4.17	8.79	2.162	18.8	66.7	38.3	7.0		
10-5	2+3	3+3	8-1	7-1	7+1	7+1	7+1	7-1	6+1	6-1	5+1	+2	4
.3945	51.6	28.8	12.45	7.88	4.18	8.50	2.050	17.6	90.0	40.0			
.3976	58.6	48.5	12.35	9.23	4.17	9.00	2.075	17.4	85.0	45.0			
.3796	52.1	37.9	12.79	7.82	4.21	9.00	2.150	17.4	55.0	20.0			
.3904	54.1	38.5	12.87	7.98	4.19	8.83	2.092	17.5	76.7	35.1	8.0		
8-1	7+1	3+3	10-5	5+1	6+1	7+1	2+1	3+1	2-1	7-1	8-1	±0	5
.3909	72.1	49.2	13.60	8.54	4.55	8.87	2.137	19.2	40.0	15.0			
.3833	34.8	69.9	13.94	8.32	4.38	9.12	2.150	17.4	50.0	10.0			
.4077	54.2	50.0	13.03	8.57	4.33	8.87	2.087	17.0	50.0	30.0			
.3940	53.6	56.5	13.53	8.48	4.42	8.96	2.108	17.2	46.7	18.3	7.0		
6-1	7+1	9-1	4+1	2+1	1+1	6+1	3+1	2+1	10-1	10-1	5+1	+4	3
.4241	66.4	34.8	13.21	8.24	4.18	9.00	2.050	17.6	85.0	45.0			
.4054	57.4	43.4	13.09	7.91	4.17	9.37	2.150	18.4	80.0	40.0			
.4030	69.3	38.6	13.89	7.79	4.18	9.12	2.150	18.2	60.0	35.0			
.4105	64.5	39.0	13.23	7.97	4.18	9.17	2.117	18.1	75.0	53.3	7.0		
4+3	2+3	4+1	7+1	5+1	6+1	3-1	4+1	4+1	3-1	1+7	5+1	+18	2
.3979	80.7	43.2	13.42	8.13	4.51	9.00	2.150	16.2	70.0	40.0			
.3840	57.3	40.4	13.35	8.23	4.09	9.25	2.112	16.6	95.0	50.0			
.3687	51.6	37.1	12.94	8.48	4.27	9.37	2.150	17.0	80.0	45.0			
.3836	63.2	40.2	13.24	8.48	4.29	9.21	2.137	16.6	81.7	45.0	7.0		
10-5	3+1	4+1	7+1	2+1	3+1	2-1	5+1	1+1	1-1	3+1	5+1	+2	4
—	—	—	—	—	—	—	—	—	—	—			
.3873	40.7	57.4	13.59	8.00	3.85	8.37	2.025	16.8	65.0	45.0			
.3935	59.3	38.6	12.79	7.88	3.94	8.25	2.000	16.4	45.0	25.0			
.3917	50.0	48.1	13.19	7.94	3.89	8.31	2.012	16.6	70.0	35.0	8.0		
7-1	9-3	6-1	8-1	5+1	10-5	10-3	1+1	1+1	4+1	8-1	8-1	-12	10
.3897	55.6	43.0	13.11	8.04	4.18	8.28	2.112	17.7	72.0	37.6	7.25		
8-1	6+1	5+1	8-1	4+1	6+1	6+1	4+1	3+1	4+1	5-1	7-1	+4	3

TENTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELD

Name of owner of	* Size of kernels	Rank in yield Sample number	Year	Descriptive items based on field or laboratory tests: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Tucker, O. A	413.6 398.3 431.9 411.8 9	109-33	1919	64.8	90.7	23.3	85.8	34.4	73.6	67.9	11.30	
			1920	58.1	97.1	18.8	84.2	35.3	92.1	77.1	12.15	
			1921	83.2	86.5	21.1	83.5	34.9	97.9	82.4	13.25	
			aver.	68.7	91.4	21.1	84.5	34.9	87.9	76.0	12.23	
			Group	10	1 +1	4 +1	10 -5	2 +1	4 +1	5 +1	8 -1	-1
Steffin, Dan	517.0 508.0 482.3 503.1 1	110-92	1919	67.1	87.2	24.5	84.7	33.3	86.4	62.1	14.85	
			1920	58.3	95.9	21.2	83.7	32.8	81.4	60.7	15.15	
			1921	80.2	85.4	24.0	85.6	33.1	75.7	79.3	14.75	
			aver.	68.5	89.5	23.2	84.7	33.1	81.2	67.7	14.92	
			Group	10	6 +1	10 -5	10 -5	10 -5	9 -1	9 -1	1 -3	-19
Schrock, Jesse	414.9- 416.3 397.0 410.1 10	111-86	1919	69.0	84.5	24.2	86.2	34.2	92.1	71.4	13.80	
			1920	58.4	95.6	20.5	85.0	33.8	85.0	70.0	13.25	
			1921	76.4	85.4	22.2	85.2	35.4	70.0	75.7	11.65	
			aver.	68.3	88.7	22.3	85.5	34.5	82.4	72.4	12.90	
			Group	10	9 -3	8 -1	8 -1	3 +1	9 -1	8 -1	5 +1	-5
Seckler, J. J. A.	420.1 411.0 431.8 422.7 9	112-108	1919	66.3	87.8	23.5	88.0	33.2	97.1	72.9	13.50	
			1920	59.4	95.0	19.9	85.5	34.0	87.9	72.1	14.10	
			1921	78.0	84.1	20.0	86.7	35.3	95.0	75.0	13.05	
			aver.	68.1	89.0	21.1	86.7	34.2	93.3	73.3	13.55	
			Group	10	8 -3	5 -1	1 +1	6 -1	1 +1	7 -1	2 -3	-7
Matter, Henry	434.9 423.8 399.2 419.7 9	113-35	1919	63.1	87.8	26.7	86.6	33.8	91.4	71.4	13.55	
			1920	57.3	97.3	19.9	83.9	33.5	88.6	65.0	13.65	
			1921	84.0	85.4	20.9	86.4	34.7	92.4	86.4	12.15	
			aver.	68.1	90.2	22.5	85.6	34.0	91.0	74.3	13.12	
			Group	10	4 +3	8 -1	7 +1	7 -1	2 +3	7 -1	4 -3	+1
Kern, R. W.	424.1 428.1 456.9 435.8 6	114-15	1919	65.2	88.7	22.3	87.5	34.3	78.6	82.1	11.55	
			1920	57.7	95.4	19.9	84.6	33.2	89.3	74.3	10.85	
			1921	81.1	85.1	21.3	85.5	34.4	90.0	94.3	12.50	
			aver.	68.0	89.7	21.2	85.9	34.0	86.0	83.6	11.63	
			Group	10	6 +1	5 -1	4 +1	7 -1	7 -1	2 +1	10 -1	-1
Schneider, John J.	455.5 434.7 482.0 457.2 5	115-40	1919	62.6	88.9	22.5	87.7	32.2	80.7	80.7	13.65	
			1920	59.3	95.4	17.8	84.1	33.5	92.1	64.3	13.55	
			1921	81.9	83.3	20.7	86.7	34.7	86.4	76.4	14.05	
			aver.	67.9	89.2	20.3	86.2	33.5	86.4	73.8	13.75	
			Group	10	7 -1	2 +3	3 +1	9 -3	6 -1	7 -1	2 -3	-2
Bratt, Thomas	401.9 432.6 399.3 411.4 10	116-117	1919	69.7	88.7	22.4	86.0	33.1	90.0	89.3	10.75	
			1920	56.1	92.3	20.4	84.4	34.2	92.4	69.3	12.40	
			1921	78.0	83.3	22.3	85.5	34.7	85.0	50.0	12.15	
			aver.	67.9	88.1	21.9	85.3	34.0	89.3	69.5	11.93	
			Group	10	10 -1	7 -1	8 -1	7 -1	4 +1	5 -1	9 -1	-11
Black, J. J.	471.9 455.5 ----- 463.9 4	117-90	1919	66.6	82.4	23.4	87.6	32.7	93.6	91.4	15.20	
			1920	58.5	96.2	21.3	85.2	34.0	91.4	65.0	14.93	
			1921	(78.6)	—	—	—	—	—	—	—	
			aver.	67.9	89.3	22.3	86.4	33.3	92.5	78.2	15.07	
			Group	10	7 -1	8 -1	1 +1	10 -5	1 +1	4 +1	1 -3	-7
Pfleeger, J. N.	429.7 428.5 428.3 429.3 8	118-74	1919	63.6	82.3	21.8	86.0	34.8	81.4	77.1	13.05	
			1920	57.0	92.4	20.8	84.4	35.4	82.9	80.7	13.50	
			1921	81.4	83.1	21.9	85.2	33.8	77.9	52.9	13.05	
			aver.	67.3	85.9	21.5	85.2	34.7	80.7	70.2	13.20	
			Group	10	10 -9	6 -1	9 -3	2 +1	10 -1	8 -1	3 -3	-15
Bratt, Thomas	----- 404.5 392.8 398.7 10	119-120	1919	(47.7)	—	—	—	—	—	—	—	
			1920	58.2	93.2	19.3	84.9	33.9	—	—	13.70	
			1921	77.1	82.2	23.6	85.1	34.6	—	—	12.65	
			aver	66.9	87.7	21.5	85.0	34.2	—	—	13.17	
			Group	10	10 -7	6 -1	10 -5	6 -1	—	—	3 -3	-17
Moulton, E.	506.7 541.2 ----- 523.1 1	120-99	1919	59.8	80.9	23.3	86.2	32.2	88.5	73.6	14.80	
			1920	52.6	91.4	23.9	84.4	32.6	85.7	71.4	14.15	
			1921	(70.6)	—	—	—	—	—	—	—	
			aver.	61.0	86.1	23.6	85.3	32.4	87.1	72.5	14.47	
			Group	10	10 -7	10 -5	8 -1	10 -5	5 +1	7 -1	1 -3	-21
average	440.4 6			67.4 10	88.7 9 -3	21.9 7 -1	85.5 7 +1	33.9 8 -1	87.1 5 +1	73.7 7 -1	13.33 3 -3	-7

* Added after the books were otherwise completed

TENTH TWELVE HIGH-YIELDING SAMPLES IN ORDER OF YIELL

Descriptive items					Observed by oldtime corn judges							Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.4127	50.7	42.4	12.64	8.06	4.06	8.50	2.025	17.6	80.0	45.0			
.3972	60.7	54.4	13.23	7.82	3.85	8.62	2.125	18.0	85.0	30.0			
.3727	57.9	52.3	12.91	8.24	4.06	9.25	2.212	18.2	65.0	35.0			
.3938	56.4	49.7	12.93	8.04	3.99	8.79	2.121	17.9	76.7	36.7	9.0		
6-1	6+1	7-1	9-1	4+1	10-5	7+1	4+1	4+1	2-1	7-1	10-1	-6	83
.3896	70.0	60.6	14.33	8.57	4.21	9.37	2.275	18.8	75.0	35.0			
.3823	67.9	56.6	14.23	8.44	4.23	9.75	2.275	17.8	75.0	15.0			
.3862	66.4	63.6	14.21	8.12	4.18	9.50	2.262	17.4	85.0	25.0			
.3861	68.1	60.2	14.26	8.38	4.21	9.54	2.271	18.0	78.3	25.2	6.0		
9-3	1+3	9-1	1-5	2+1	5+1	1-1	10-3	4+1	2-1	10-1	2+1	-8	89
.3670	65.0	32.6	13.18	7.27	4.33	9.25	2.275	21.0	15.0	30.0			
.3984	62.1	27.9	12.79	7.64	4.26	8.75	2.200	20.8	30.0	15.0			
.4078	60.0	20.5	12.76	7.39	4.21	8.25	2.100	20.8	65.0	15.0			
.3904	62.4	27.0	12.91	7.74	4.27	8.75	2.192	20.4	36.7	20.0	11.0		
8-1	3+1	1-1	10-5	10-5	3+1	8+1	9-3	10-5	10-1	10-1	10-1	-18	104
.4059	52.1	53.0	14.06	7.36	4.06	8.75	2.200	19.6	55.0	40.0			
.4053	45.6	61.8	14.47	7.67	3.73	8.75	2.250	20.4	45.0	35.0			
.4132	47.5	50.8	13.76	7.73	4.06	8.50	2.175	19.4	65.0	30.0			
.4081	49.4	55.2	14.10	7.59	3.95	8.67	2.208	19.8	55.0	35.0	6.0		
1+3	10-7	8-1	2+3	9-3	10-5	9+1	9-3	9-5	10-1	7-1	2+1	-18	107
.3961	51.4	62.9	13.91	7.48	4.18	9.00	2.200	19.8	70.0	55.0			
.3815	45.0	57.4	13.97	7.70	3.44	9.00	2.250	20.8	35.0	50.0			
.3847	38.6	57.6	13.39	7.51	3.97	8.50	2.175	19.2	55.0	25.0			
.3875	45.0	59.2	13.76	7.57	4.03	8.83	2.208	19.9	53.3	43.3	7.0		
9-3	10-7	9-1	3+3	9-3	10-5	7+1	9-3	10-5	10-1	3+1	5+1	-22	111
.4043	70.7	47.0	13.12	7.79	4.15	8.25	2.100	19.0	80.0	40.0			
.3889	47.9	52.2	13.38	7.88	4.06	8.25	2.075	18.6	45.0	25.0			
.4051	57.1	46.2	13.51	8.09	4.18	8.50	2.150	18.4	60.0	45.0			
.4001	58.6	48.5	13.34	7.91	4.13	8.33	2.108	18.7	61.7	43.4	8.0		
3+5	5+1	6-1	6+1	6+1	8+1	10-3	3+1	7-1	8-1	3+1	8-1	+4	37
.4199	54.3	69.7	14.48	7.58	4.15	8.75	2.175	19.4	80.0	45.0			
.4148	45.0	57.4	13.81	7.64	4.09	9.00	2.150	19.2	70.0	30.0			
.3906	62.1	65.2	14.30	7.73	4.36	9.25	2.225	18.6	55.0	50.0			
.4081	53.8	64.0	14.23	7.65	4.20	9.00	2.183	19.1	68.3	41.1	5.0		
1+3	7+1	10-7	1-5	9-3	6+1	5+1	8-1	8-3	5+1	5+1	1+1	-10	95
.3879	56.4	49.2	13.21	7.42	4.09	8.00	2.100	19.6	80.0	40.0			
.4060	34.3	58.2	13.94	7.70	4.08	8.75	2.150	20.0	80.0	30.0			
.4152	57.9	56.1	13.24	7.54	4.00	8.25	2.125	20.0	20.0	30.0			
.4037	51.2	54.7	13.47	7.56	4.04	8.33	2.125	19.4	60.0	33.3	7.0		
2-3	9-3	8-1	5+1	10-5	9+1	10-3	4+1	9-5	8-1	8-1	5+1	-12	101
.3902	52.9	75.8	14.67	7.64	4.21	9.37	2.300	20.0	75.0	50.0			
.3733	40.7	83.1	14.68	7.70	4.03	4.62	2.300	20.0	55.0	25.0			
—	—	—	—	—	—	—	—	—	—	—			
.3818	46.8	79.5	14.67	7.67	4.12	9.50	2.300	20.0	65.4	37.5	3.0		
10-5	10-7	10-7	1-5	8-1	8+1	1-1	10-3	10-5	6+1	6-1	1+1	-32	112
.4014	64.3	39.4	13.36	7.48	4.30	8.75	2.175	20.6	45.0	50.0			
.4037	57.1	52.9	13.69	7.85	4.17	9.00	2.175	18.8	60.0	35.0			
.3836	55.0	60.6	14.06	7.79	3.91	8.75	2.225	18.2	50.0	40.0			
.3962	58.8	51.0	13.50	7.70	4.13	8.83	2.192	19.2	51.7	41.7	10.0		
5-1	4+1	8-1	4+1	8-1	8+1	7+1	9-3	8-3	10-1	5+1	10-1	-6	85
—	—	—	—	—	—	—	—	—	—	—			
.3938	50.8	69.1	13.76	7.35	4.00	8.75	2.250	20.0	50.0	25.2			
.3982	42.9	67.4	13.18	7.45	4.00	8.75	2.150	19.8	75.0	35.0			
.3960	46.8	68.8	13.47	7.40	4.00	8.75	2.200	19.9	62.5	30.0	6.0		
5-1	10-7	10-7	5+1	10-5	10-5	8+1	9-3	9-5	8-1	9-1	2+1	-32	118
.3936	65.7	87.1	15.45	7.79	4.21	9.25	2.275	20.0	75.0	50.0			
.3763	42.1	87.5	16.00	7.88	4.29	9.25	2.275	19.8	50.0	45.0			
—	—	—	—	—	—	—	—	—	—	—			
.3849	53.9	87.3	15.72	7.83	4.25	4.25	2.275	19.9	62.5	47.5	7.0		
10-5	7+1	10-7	1-5	7-1	4+1	2-1	10-3	9-5	8-1	2+3	5+1	-22	111
.3947	54.3	58.7	13.82	7.73	4.11	8.89	2.198	19.4	61.0	36.2	7.2		
6-1	7+1	9-1	2+3	8-1	9+1	6+1	9-3	9-5	8-1	7-1	7-1	-16.2	9

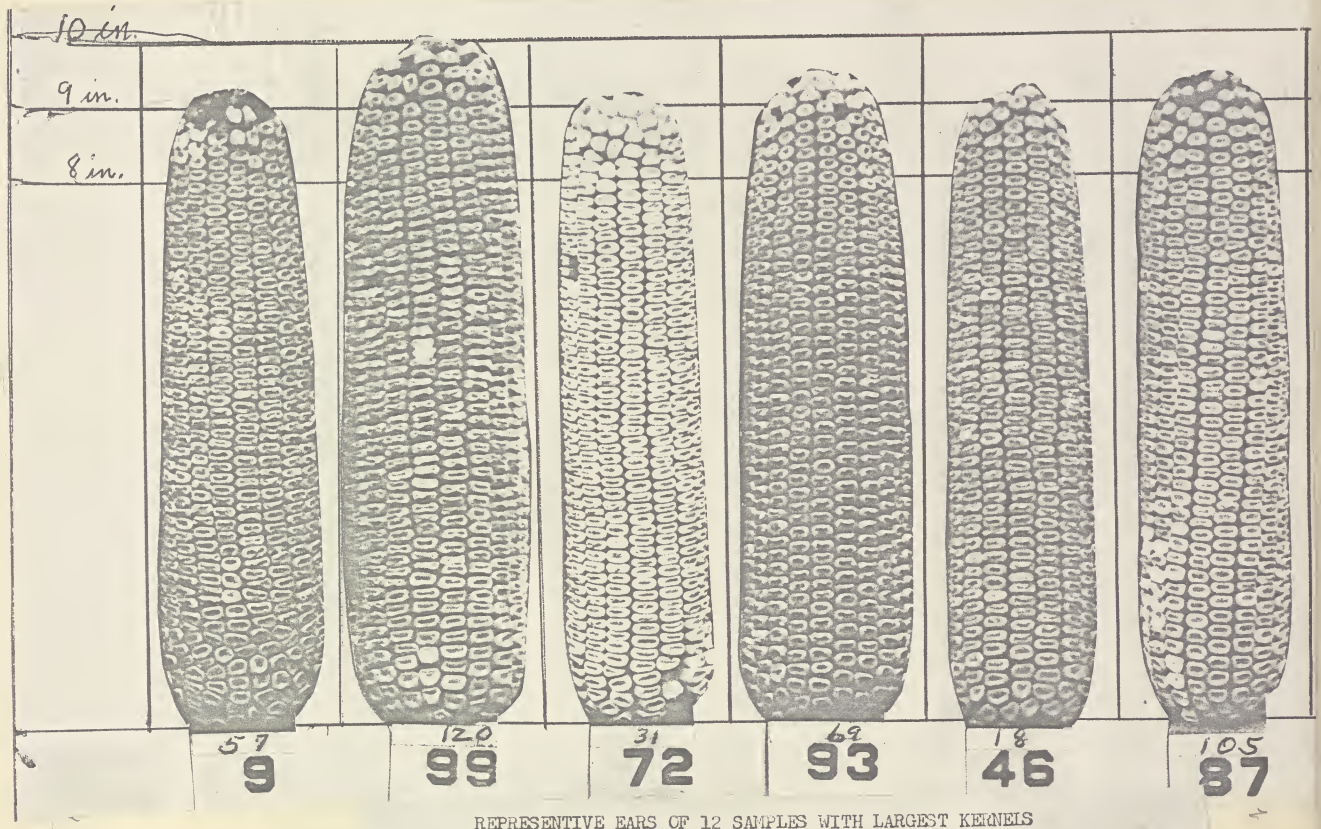
SUMMARY OF TEN DECIL-GROUPS

Ten decil groups in order of yield	* Size of kernels	Descriptive items based: Bushels per acre	Percent of good corn	Percent moisture	Percent shelled corn	SAMPLES IN ORDER OF YIELD on field or laboratory tests: Density shelled corn	Germination index	Disease index	Weight of ear	Laboratory score
Average of 1st 12 high yielding samples	450.2 5	75.5 1	89.7 6+1	20.8 4+1	86.2 2+1	34.7 2+1	89.5 4+1	72.3 7-1	12.85 5+1	+5
Average of 2nd 12 high yielding samples	447.6 5	73.7 2	90.1 5+2	21.3 5-1	85.9 4+1	34.6 3+1	86.3 6-1	79.1 3+1	12.93 5+1	+6
Average of 3rd 12 high yielding samples	446.6 6	72.9 3	90.5 3+3	21.3 5-1	85.8 5+1	34.5 3+1	85.0 7-1	77.4 4+1	12.41 7+1	+5
Average of 4th 12 high yielding samples	460.9 4	72.5 4	90.6 3+3	21.4 5-1	85.7 6+3	34.0 6-1	84.8 8-1	73.1 7-1	12.77 5+1	+3
Average of 5th 12 high yielding samples	462.1 4	72.0 5	89.1 8-1	21.7 6-1	86.1 3+1	33.9 8-1	85.7 7-1	75.0 6+1	13.20 3-3	-5
Average of 6th 12 high yielding samples	446. 6	71.4 6	89.7 6+1	21.4 5-1	85.8 5+1	34.1 6-1	87.9 4+1	75.3 6+1	12.75 5+1	+3
Average of 7th 12 high yielding samples	455.7 5	70.7 7	89.8 5+3	21.6 6-1	85.9 4+1	34.1 6-1	87.0 6-1	75.6 5+1	12.68 6+1	+3
Average of 8th 12 high yielding samples	455.1 6	70.2 8	90.1 5+3	21.7 6-1	85.7 6+3	34.2 5+1	85.8 7-1	77.6 4+1	12.68 6+1	-7
Average of 9th 12 high yielding samples	441.1 6	69.4 9	89.2 7-1	21.5 6-1	85.4 8-1	34.4 3+1	88.3 4+1	74.5 6+1	12.20 8-1	-1
Average of 10th 12 high yielding samples	440.4 6	67.4 10	88.7 9-3	21.9 7-1	85.5 7+1	33.9 8-1	87.1 5+1	73.7 7-1	13.33 3-3	-7
Average of all 120 samples	449.7 5	71.6	89.7	21.4	85.8	34.2	86.7	75.3	12.78	

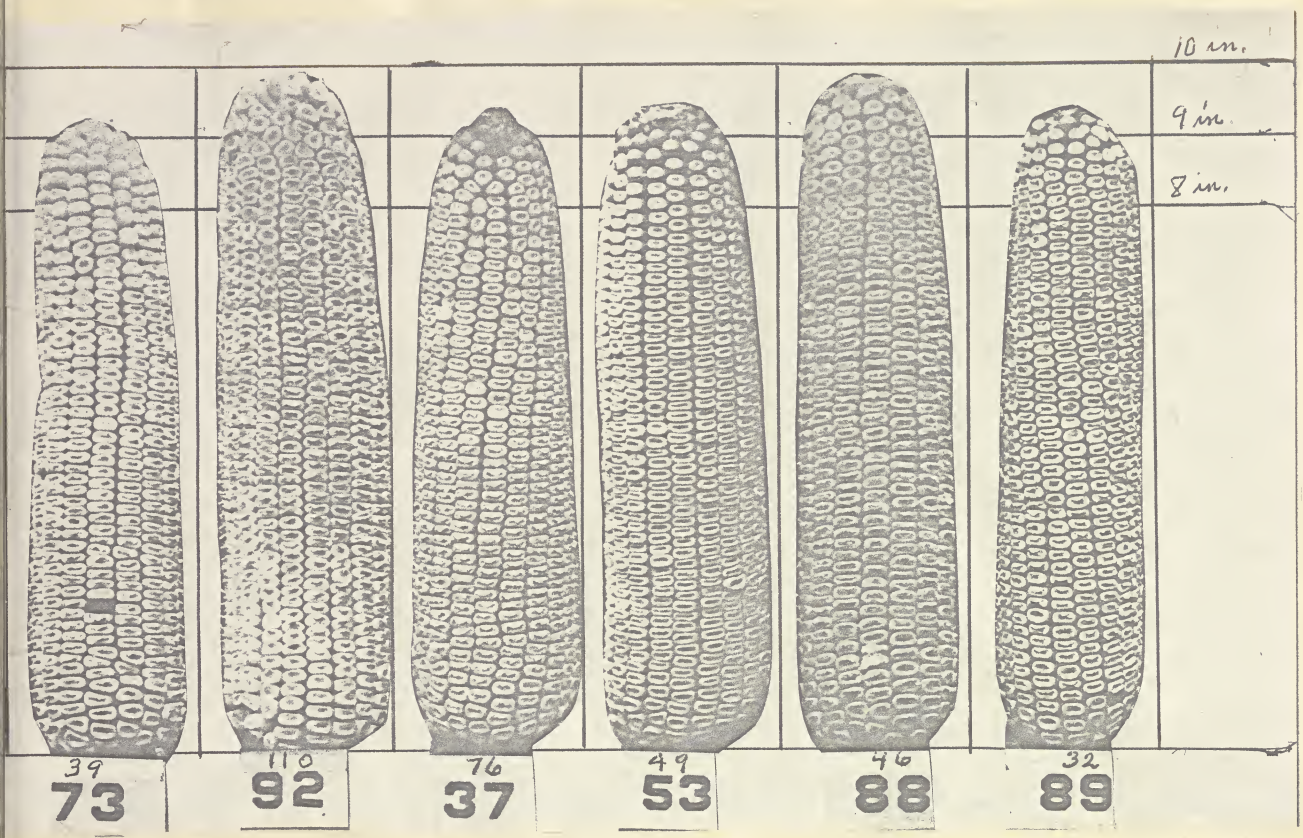
* Added after the books were otherwise completed

SUMMARY OF TEN DECIL GROUPS IN ORDER OF YIELD

Descriptive items					observed by oldtime corn judges							Judges scoring	
Density of ear	Kernel development	Indentation index	Length of kernel	Width of kernel	Thickness of kernel	Length of ear	Diameter of ear	Number rows of kernels	Color of shank	Condition of shank	Variation index	Total score	Placing by score
.4016 3+5	59.1 4+1	46.8 6-1	13.60 4+1	7.94 5+1	4.19 6+1	8.89 6+1	2.142 3+1	18.1 4+1	63.9 7+1	45.4 3+1	7.2 7-1	+12	17
.4034 3+5	62.0 4+1	42.9 5+1	13.44 5+1	8.05 4+1	4.17 7+1	8.99 5+1	2.131 5+1	17.8 4+1	64.2 7+1	40.4 5+1	6.4 3+1	+16	10
.3994 4+5	58.7 5+1	39.7 4+1	13.25 7+1	8.02 4+1	4.20 6+1	8.89 6+1	2.140 6+1	17.9 4+1	64.9 7+1	40.6 5+1	7.1 7-1	+14	13
.3926 7-1	57.4 5+1	44.8 6-1	13.39 6+1	8.07 3+1	4.26 3+1	9.08 3-1	2.136 5+1	17.9 4+1	70.8 4+1	39.0 5+1	7.1 7-1	+ 4	37
.3938 6-1	58.3 5+1	48.0 6-1	13.71 3+3	7.99 5+1	4.26 5+1	9.01 5+1	2.175 8-1	18.8 7-1	72.4 4+1	41.8 4+1	6.8 3+1	+ 6	33
.3971 5-1	56.1 6+1	48.0 6-1	13.52 4+1	7.85 6+1	4.24 5+1	8.82 7+1	2.157 7+1	18.8 7-1	68.1 5+1	35.9 7-1	7.7 7-1	+ 2	46
.3935 7-1	54.4 6+1	50.3 8-1	13.52 4+1	7.94 5+1	4.20 6+1	8.92 6+1	2.148 6+1	18.4 6+1	68.5 5+1	27.8 10-1	7.2 7-1	+ 4	37
.3927 7-1	58.7 5+1	41.2 5+1	13.32 6+1	7.91 6+1	4.23 4+1	8.97 5+1	2.139 6+1	18.7 6+1	68.6 5+1	37.7 6-1	7.8 7-1	+ 6	33
.3897 8-1	55.6 6+1	43.0 5+1	13.11 8-1	8.04 4+1	4.18 6+1	8.88 6+1	2.112 4+1	17.7 3+1	72.0 4+1	37.6 5-1	7.25 7-1	+ 4	37
.3947 6-1	54.3 7+1	58.7 9-1	13.82 2+3	7.73 8-1	4.11 9+1	8.89 6+1	2.199 9-3	19.4 9-5	61.0 8-1	36.2 7-1	7.1 7-1	- 8	89
.3958	59.4	46.3	13.47	7.95	4.20	8.93	2.150	18.3	67.4	38.2	7.2	—	—



REPRESENTIVE EARS OF 12 SAMPLES WITH LARGEST KERNELS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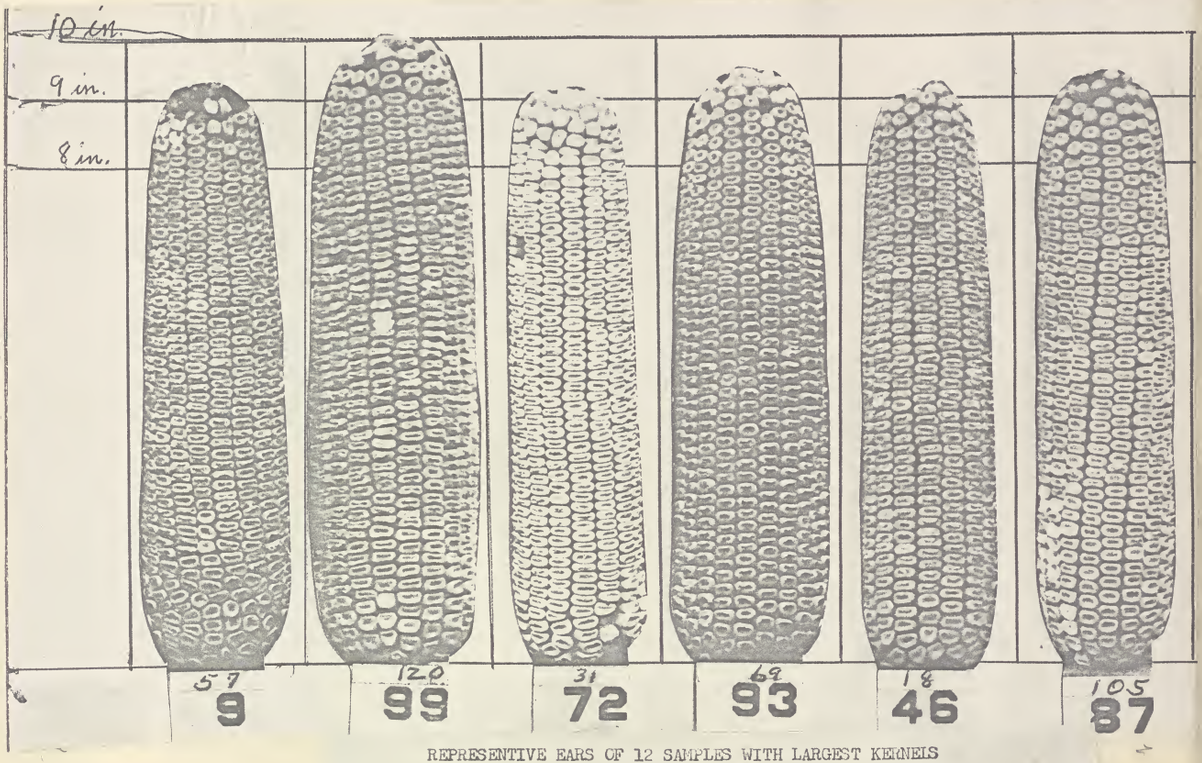

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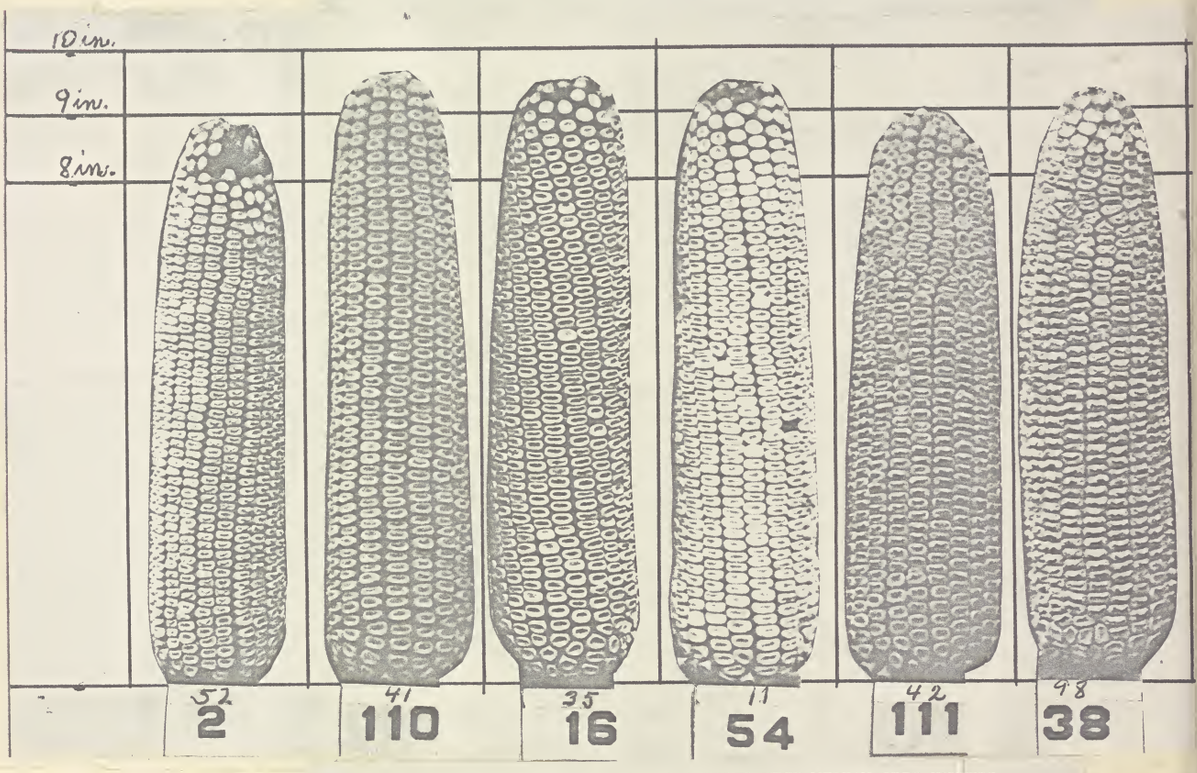
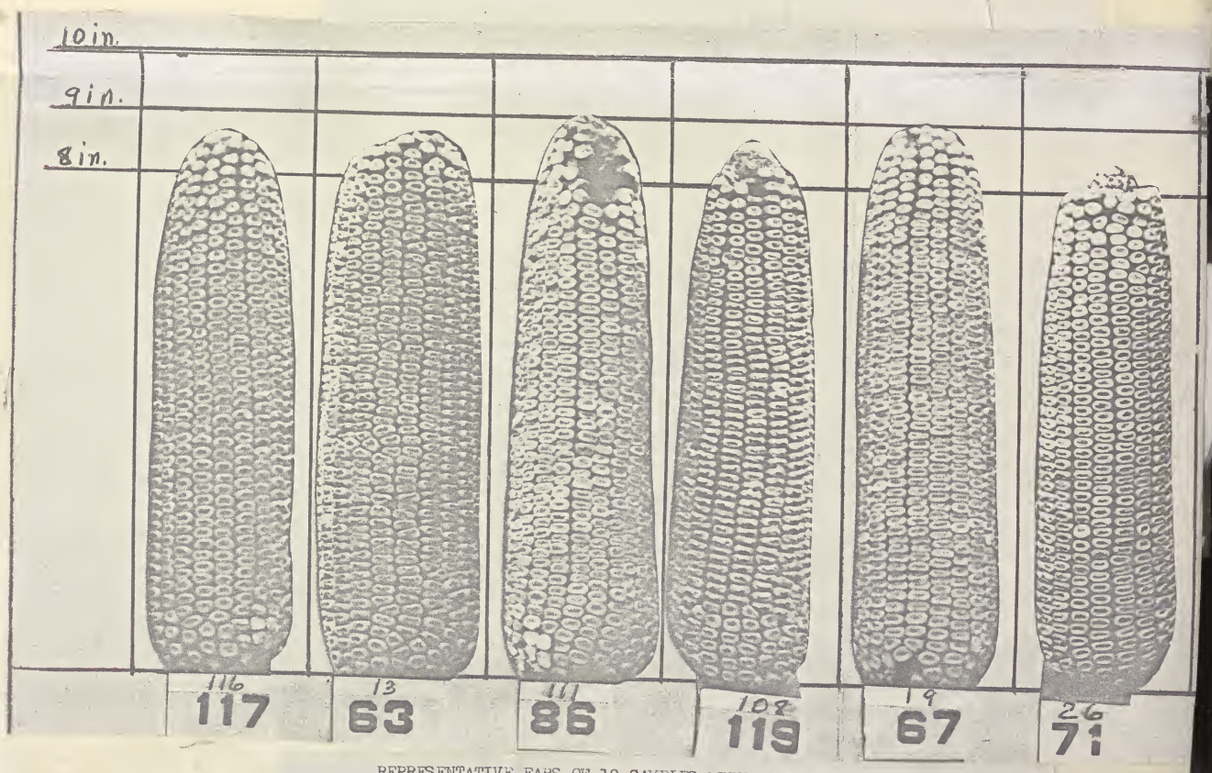
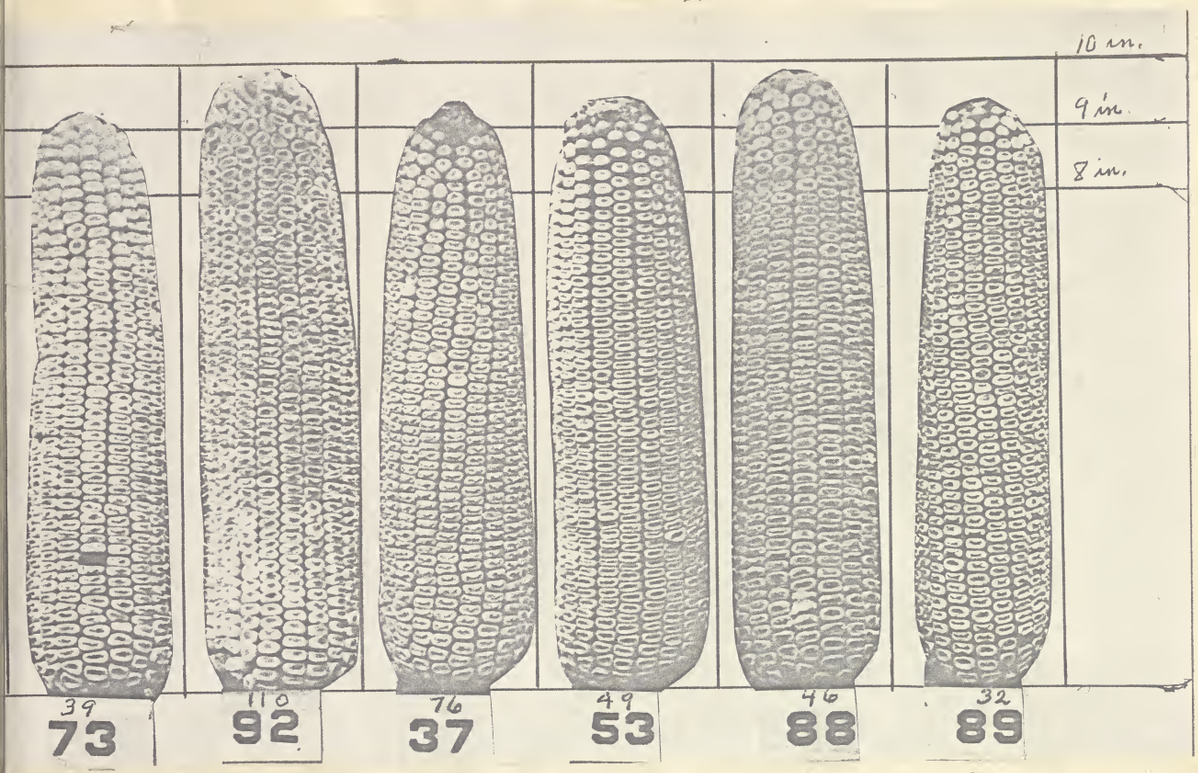


REPRESENTATIVE EARS OF 12 SAMPLES WITH MEDIAN SIZE KERNELS



REPRESENTATIVE EARS OF 12 SAMPLES WITH SMALLEST KERNELS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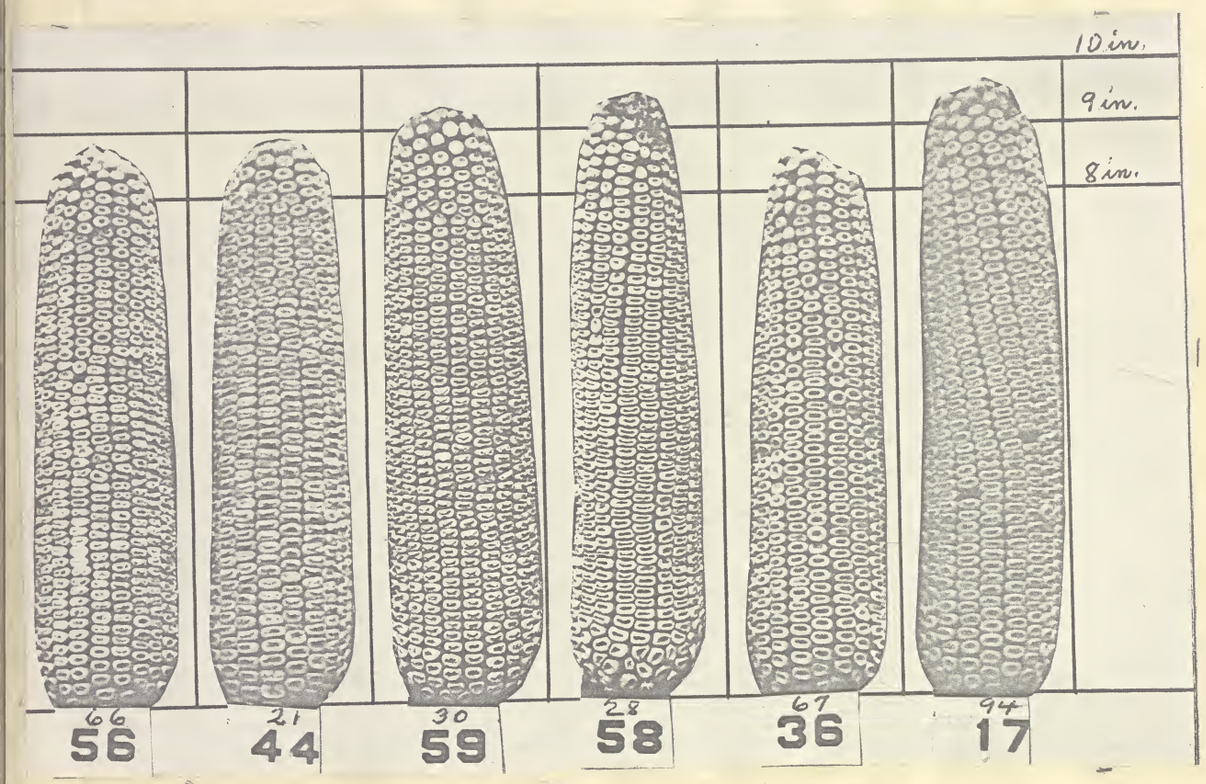
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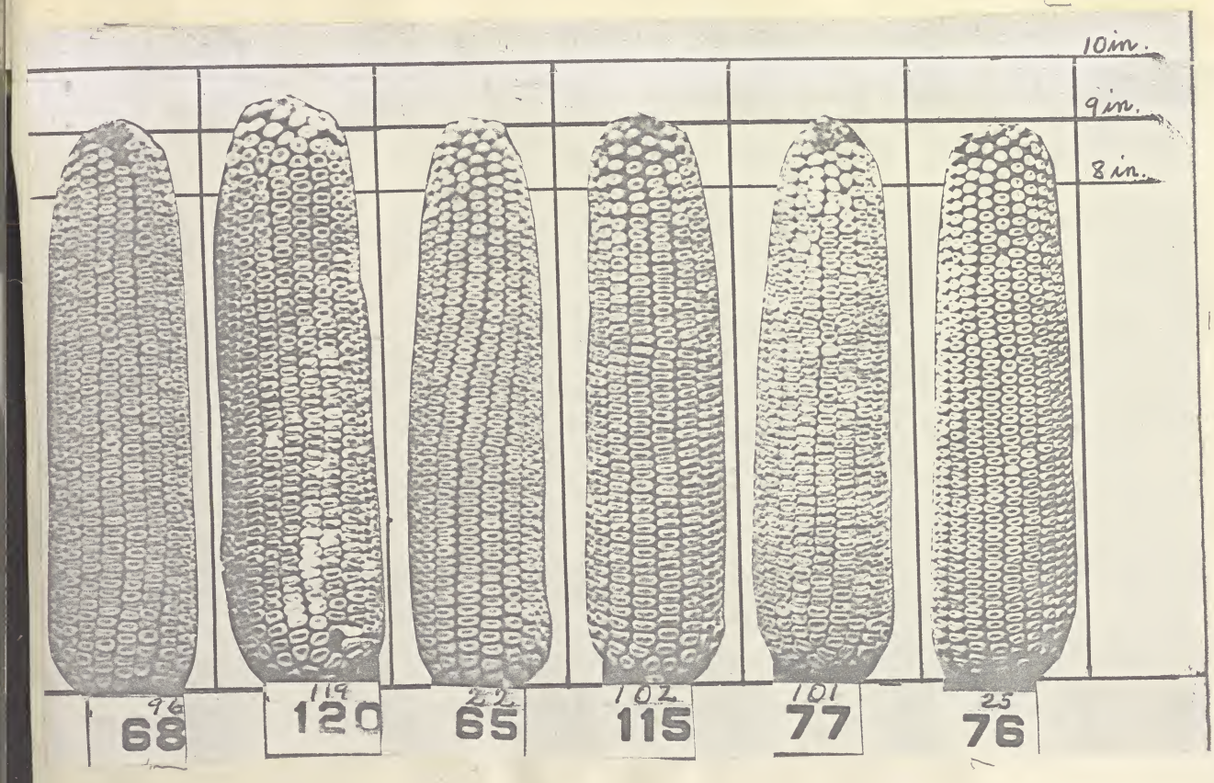
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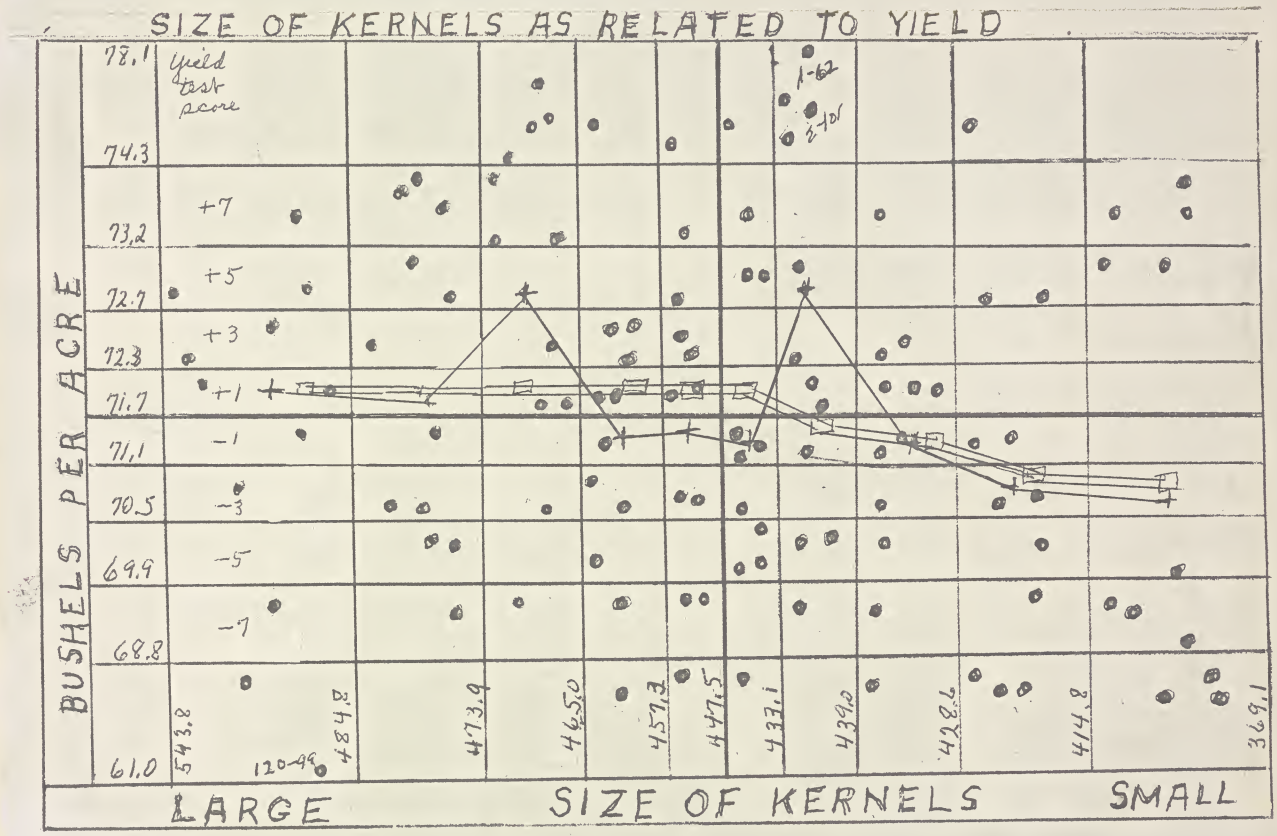

SIZE OF KERNELS AS RELATED TO YIELD AND
TO THE OTHER 19 DESCRIPTIVE ITEMS

The size of kernel was determined by multiplying the length of kernels in milligrams by the width and the thickness to give their size in cubic milligrams.

The size of kernels varied from 543.8 cubic milligrams for sample No. 57-9 which yielded 72.9 bushels per acre to 369.1 for sample No.25-76 which yielded 67.9 bushels per acre.

The average size of kernels for the highest yielding sample, No.1-62, was 443.2 milligrams which was a little smaller than the average of all samples. Sample No.120-99 with 523.1 cubic milligram kernels had next to the largest kernels.

Nearly all of the 12 highest yielding kernels had medium size kernels. The trend line for yield was definitely downward for the samples having small kernels.

SIZE OF KERNELS
as related to
BUSHELS PER ACRE AND OTHER DESCRIPTIVE ITEMS

Descriptive items	Average values of descriptive items of: 12 decil group 1 samples ●	12 median group samples ▲	12 decil group 10 samples ○	Best or most favored 1	2	3	4	Decil groups 5 ‖ 6	7	8	9	Poorest or least favored 10	See page *	See pages of Vol.II
Items that required field or laboratory tests														
Bushels per acre	70.8	71.4	70.7	High 78.1				Median 71.7				Low 61.0		122–125
Percent of good corn	89.5	90.2	88.8	High 92.7			▲	●		○		Low 85.8	122	126–129
Percent of moisture	22.2	21.2	20.9	Low 17.9			○	▲ 21.4		●		High 24.9	123	130–133
Percent of shelled corn	85.6	85.7	85.6	High 87.3				● ▲ 85.8 ○				Low 84.5	123	134–137
Density of shelled corn	33.7	34.2	34.6	Heavy 35.6		○		▲ 34.2		●		Light 32.4	124	138–141
Germination index	84.1	86.2	73.6	High 93.8				▲ 87.1		●		Low ○ 64.5	124	142–145
Disease index	72.5	71.6	61.7	Little 90.2				75.7	●	▲		Much ○ 58.3	125	146–149
Weight of ears	13.49	12.71	12.06	Heavy 15.07	●			▲ 12.75			○	Light 10.35	125	150–153
Items observed by oldtime corn judges														
Size of kernels	451.8	445.7	398.4	Large ○ 543.8				▲ 446.9				Small ○ 369.1		
Density of ears	39.21	39.48	39.67	Heavy 42.03				○ Median ▲ 39.54	●			Light 37.58	126	154–157
Kernel development	57.3	56.4	56.4	Good 78.6				● ▲ ○ 56.4				Poor 38.3	126	158–161
Indentation index	57.7	45.2	41.0	Smooth 16.5				○ 44.7 ▲			●	Rough 87.3	127	162–165
Length of kernels	14.11	13.51	13.13	Long 15.72	●		▲	13.41		○		Short 12.47	127	166–169
Width of kernels	8.44	8.06	7.51	Wide 9.01	●	▲		7.92				Narrow ○ 7.12	128	170–173
Thickness of kernels	4.27	4.24	4.04	Thick 4.42		●	▲	4.21				Thin ○ 3.89	128	174–177
Length of ears	8.92	8.46	8.58	Long 9.67				● ▲ 8.96			○	Short 8.25	129	178–181
Diameter of ears	2.185	2.137	2.123	Small 2.012			○	▲ 2.137		●		Large 2.304	129	182–185
No. of rows of kernels	17.6	18.0	19.2	Small 14.9		●	▲	18.3		○		Large 2.09	130	186–189
Color of shank index	69.0	71.8	71.9	White 86.7			▲ ○	● 67.7				Dark 36.7	130	190–193
Condition of shank index	34.4	39.1	36.1	Smooth 58.3				▲ 38.4	○		●	Rough 18.3	131	194–197
Variation index	6.5	7.2	7.6	Uniform 3.0		●		7.0	▲ ○			Uneven 11.0	131	198–201

★ Charts showing the relationship of each descriptive item to bushels per acre for each of the 120 samples are to be seen on the pages indicated.